PIT AND QUARRY

FEBRUARY 1955

One of the International Minerals Feeds Equipment Dredges in the Florida Phosphate Field (See page 90)

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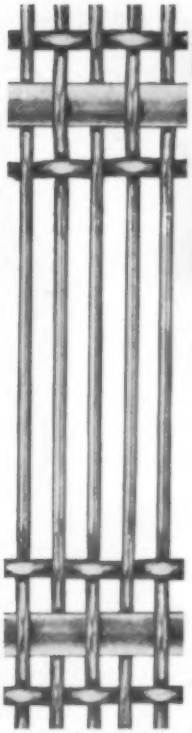

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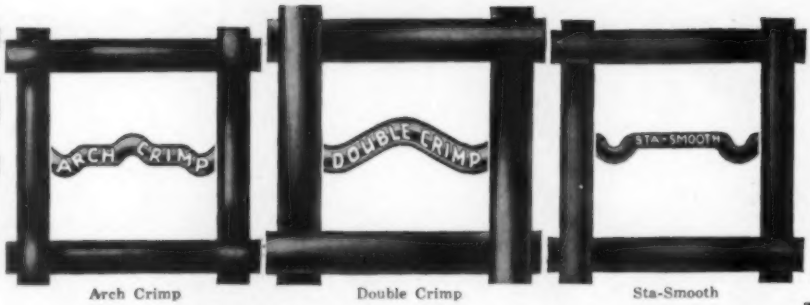
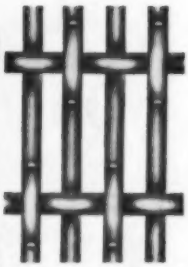


Arch Crimp | Double Crimp | Sta-Smooth



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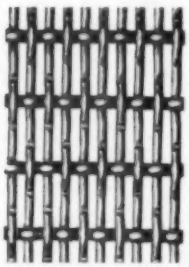

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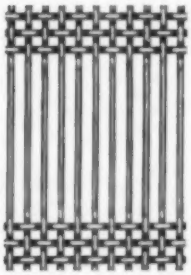

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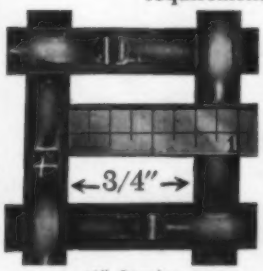

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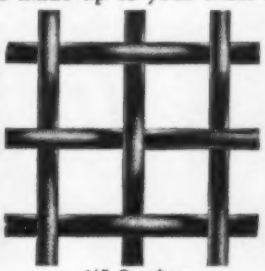

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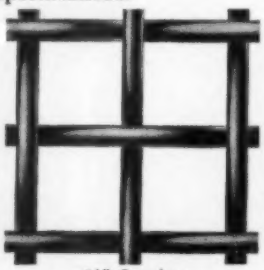

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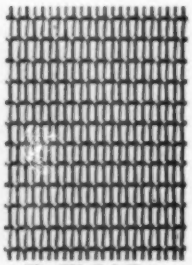

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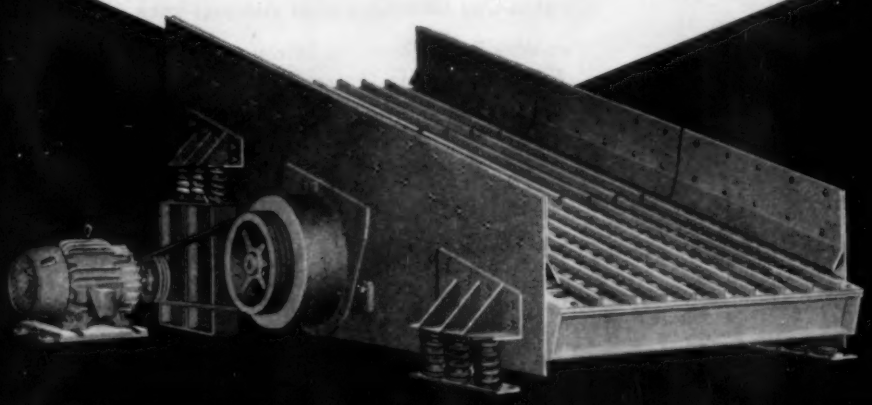

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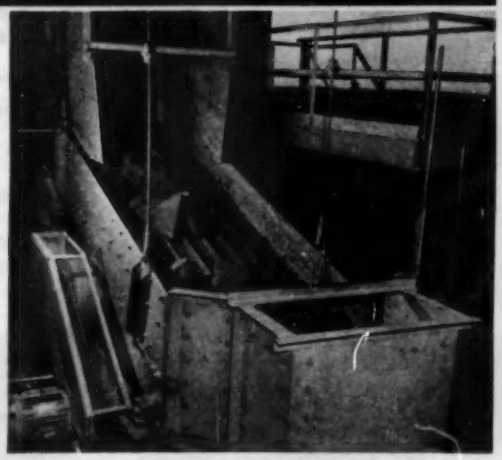

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pit and quarry

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To subscribers: When requesting change of address, kindly send old as well as new address.

B.F.Goodrich

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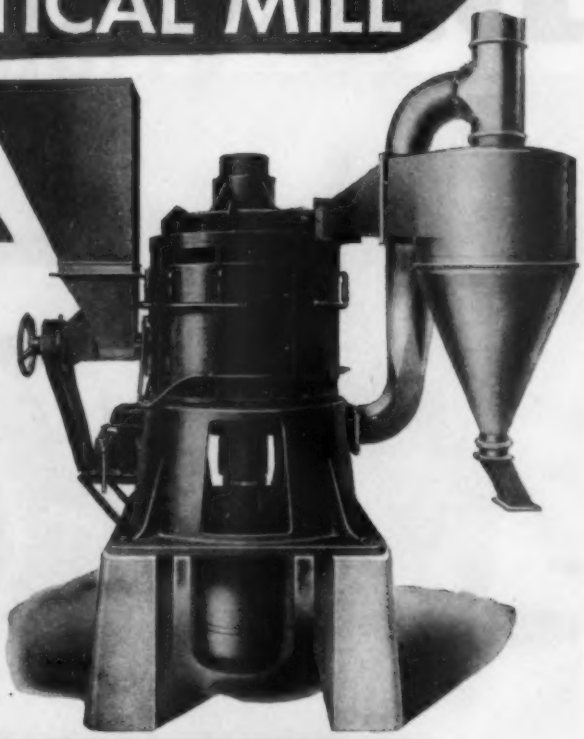

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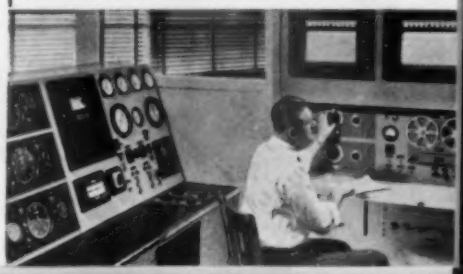

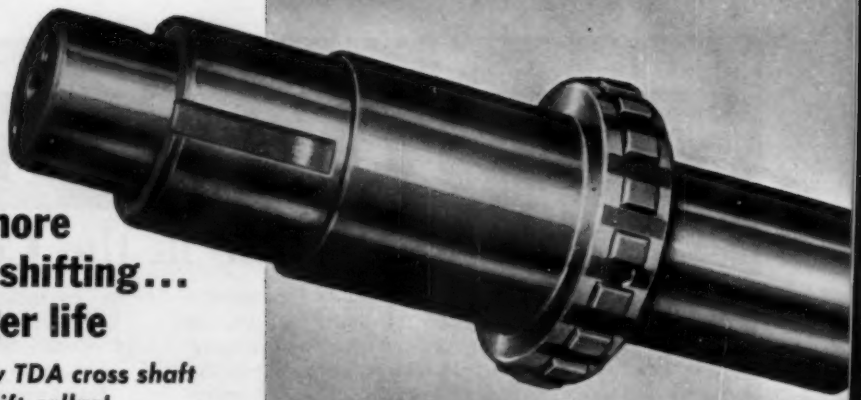

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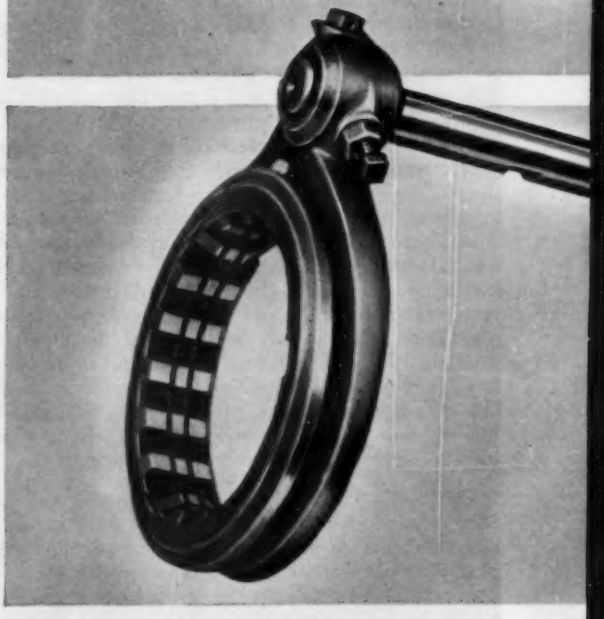
Another TDA advantage! Only Timken-Detroit 2-Speed Axles have this advanced principle of shifting—"Torture-Tested" indoors, road tested under the most gruelling outdoor driving conditions ever! The result? Longer life, less maintenance, repairs and downtime; lower operating costs!

Note that in the new TDA Cross Shaft (above), a large *single row* of driving teeth gives greatly improved locking action with the new TDA Shift Collar teeth. Wear is reduced. There is no "hopping" out of gear.

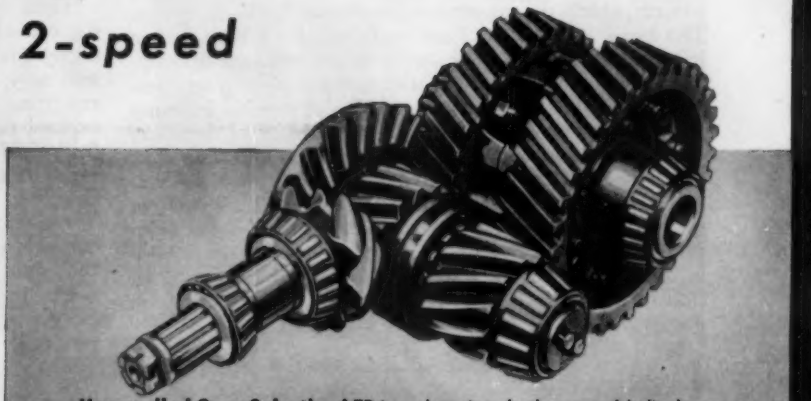
New TDA Shift Collar (right), has *three* sets of teeth for driving and engaging — center teeth for locking only. Far less wear on engaging edges. Locking functions completely separated from driving and engaging functions!

Push-Button Operated. All TDA 2-Speed Axles are push-button shifted, with automatic activation by your choice of electricity, vacuum or air.



1,755,000 TIMES

...in the severest 2-speed



Unequalled Gear Selection! TDA 2-Speed Axles are available in three different ratio "spreads" to meet any transmission-engine combination: 28%, 37% or 49%. Unlike ordinary designs that are limited to 37%, this TDA selection may be obtained simply by changing the low speed helical gear set. Exclusive, double-reduction design eliminates small, complicated parts. Man-size gears and bearings mean longer wear, quieter operation. Can operate in any gear ratio indefinitely without overheating!

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editorial

Co-operate in the Census

ABOUT this time of the year many businessmen are getting a little weary of filling out various government and other forms. There is one coming soon, however, which deserves—and requires—the attention and full co-operation of every commercial enterprise. This is the questionnaire to be sent out by the Census Bureau early in 1955 to every one of the thousands of such enterprises in this country for the 1954 censuses of businesses, manufactures, and the mineral industries. This one costs nothing, and it provides valuable information for business, government, and others.

The collection of information about the American people and their activities is traditionally a function of the Federal Government. The first Census of Manufactures was made in 1810 and the latest one covered 1947. The Census of Mineral Industries dates from 1840 and was last taken to cover 1939. The Census of Business, which covers retail, wholesale, and service trades, was inaugurated in 1929 and was last taken to cover 1948 operations. Thus it can be seen that the censuses to be taken in 1955 will bring up to date and improve statistics from previous censuses which now are from 7 to 15 years old. The need for better information is vital, especially in the mineral industries, where many changes and tremendous growth have taken place since 1939.

THE 1954 census of mineral industries will be a co-operative effort of the Bureau of Mines, the Department of the Interior, and the Bureau of the Census, Department of Commerce, to gather statistics of mineral production and other operations of some 40,000 establishments in the nation's mineral industries. This is the result of a recent agreement which assures an effective blending of the special knowledge of the technical experts in the Bureau of Mines with the skill of the Census Bureau in collecting and presenting statistical data. It will also prevent duplication of effort as the Bureau of Mines collects information annually, on a voluntary basis, to provide statistics on mineral production.

These censuses together form one of the most helpful services which the government performs for businessmen. The latter can use the facts presented for years to come in making decisions on plant location, product development, marketing channels, sales quotas, advertising campaigns, etc. The data presented will also provide information on prospective markets, the availability of necessary materials and supplies, the competition to be found in certain areas, and the available supply of workers, engineers, and salesmen. These censuses will also be of vital importance to the government in mobilization planning and in many other ways. The information provided is important to trade associations, business advisory services, universities, trade publications, and many other business groups.

IT was recently announced that establishments in the minerals-producing industries will soon receive joint forms on which to enter the information requested for both the annual canvasses of the Bureau of Mines and the quinquennial Census of Mineral Industries of the Bureau of the Census. Principal inquiries of interest to producers in the pit-and-quarry field will be the following:

Identification of mine, preparation plant, and nature of operations

Company affiliation and ownership

Employment and payrolls

Man-hours worked by production, development, and related workers, by type of work

Costs of purchased materials, supplies, fuels, electric energy, contract work, and machinery

Water use

Horsepower rating of power equipment at end of year

Capital expenditures

Mechanical-power loading and excavating machines, by type, for all mineral operations except crude petroleum and natural gas extraction

Output of products and services, in physical units and in dollars.

The Census of manufactures, to cover an estimated 275,000 factories, will include inquiries on plant identification, kind of industry, employment, payrolls, hours of work, cost of materials consumed, power equipment, water consumption, and value of products shipped. Both of these joint censuses will be mail canvasses.

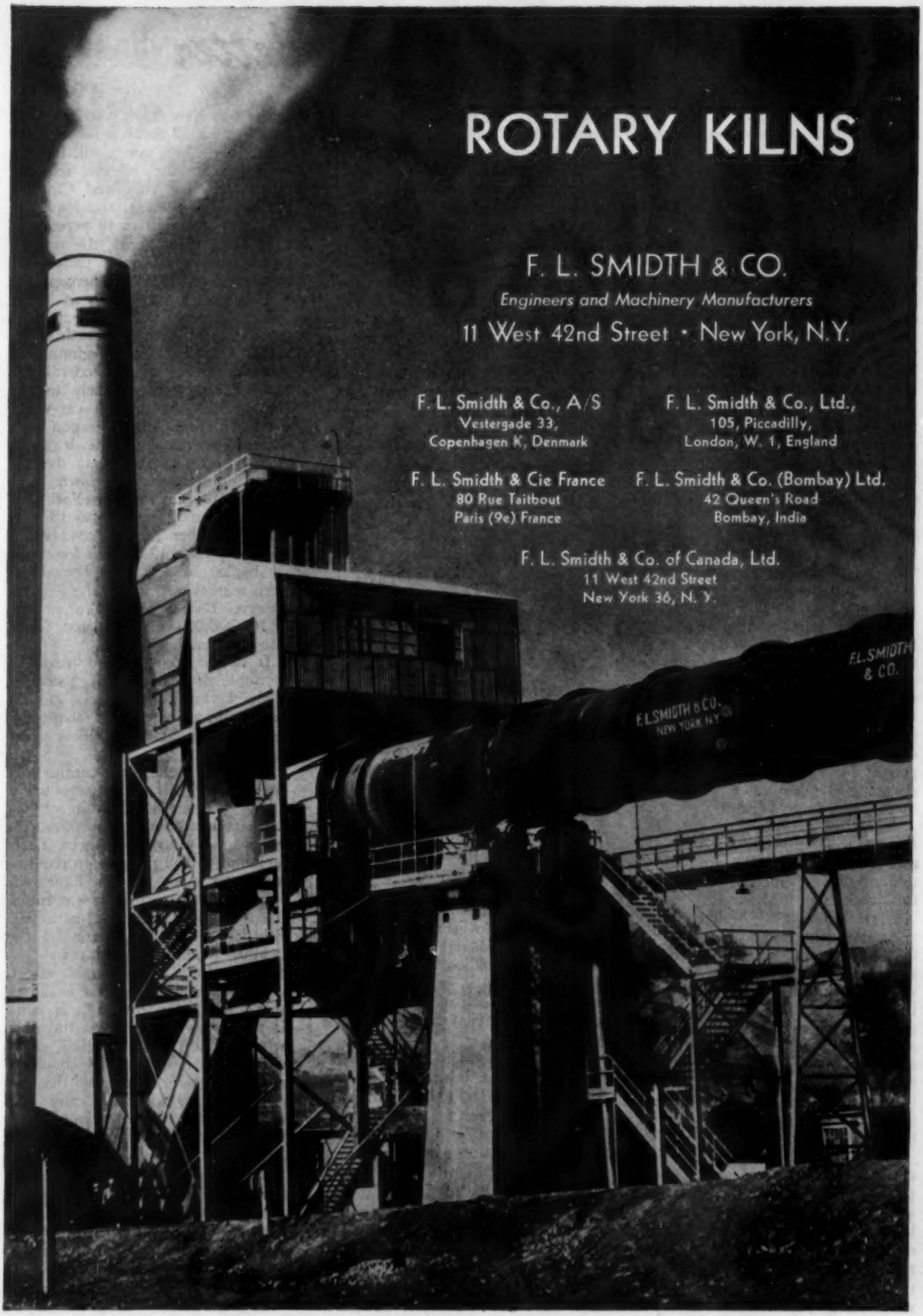
The quality of the census and its value to all depends on the businesses reporting. The Census Bureau may do a perfect job in editing, tabulating, and publishing the data, but if the questionnaires have been carelessly or inaccurately filled out, the value of the entire census may be jeopardized. Promptness is also important for speedy compilation and publication of the results. Businessmen will be asked to file their reports within 30 days after they receive their reporting form.

ALL reports are kept strictly confidential; they will be classified, tabulated, and finally published in such form that the operations of no single firm will be revealed. What you submit is seen only by the Bureau's sworn employees, who are by law subject to severe penalties for disclosure of information that would reveal data on individual operations.

These censuses are required by law, and the law also requires replies to census questionnaires. This law was enacted by Congress in 1954 under strong urging by business; and now business should co-operate fully. Any delay in returning completely filled out forms will necessitate expensive follow-up telegrams, telephone calls, or visits from field personnel. Inaccuracy, where it is apparent to the Bureau, also involves expensive follow-up and rechecking.

We strongly urge all producers and manufacturers to co-operate fully in these censuses. We also suggest that those not now keeping adequate records of their businesses do so at once for their own benefit and in order to be ready to fill out the questionnaires when they are received. Full use should also be made of this valuable information when it becomes available.

Walter E. Trauffer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Washington News Letter

TRYING to keep the economic situation on an even keel is one of the perennial worries around Washington.

When the Republicans came into office at the beginning of 1953, they were still concerned about inflation, and they took a great many measures, all at once, to combat it. As early as the middle of 1953, it was realized that they had overdone it.

Many measures were taken to reverse the trend; but it was discovered that it is much easier to start deflation than to stop it. It took over a year before the expansion measures took hold. In the meantime employment and income lagged. By the time the expansion began to be felt by a large number of people, an election had taken place and the surprised Democrats found themselves in control of Congress. Many Republicans are now saying ruefully that they were the victims of their own overzealousness in fighting inflation.

Now, at the beginning of 1955—two years and one election later—the Administration is again worried about inflation and is beginning to take measures to combat it. The Republican politicians are frankly worried that history may repeat itself. If that were to happen, the penalty for overzealousness would be not only the loss of Congress but the White House as well.

A review of the actions of the Federal Reserve Board since the Republicans took over the administration of the government shows how this works out.

1. In January, 1953, immediately after President Eisenhower took office, the Federal Reserve Board began selling, in the open market, some 800 million dollars' worth of its holdings of U. S. Government securities. This was intended to have a restrictive effect on credit and money. To pay for these bonds the buyers use their funds in banks, thereby reducing the bank reserves; this in turn limits the ability of the banks to extend credit.

2. Also in January, 1953, the Federal Reserve Board raised discount rates from 1¾ to 2 percent. These are the interest rates at which the banks borrow money from the Federal Reserve Bank to build up their reserves. Making it expensive for them to build up the reserves which were being depleted by the open market operation discouraged the banks from doing that. This action was also designed to be restrictive.

3. In February, 1953, the Federal Reserve Board reduced the margin requirements on loans for purchasing or carrying listed securities from 75 to 50 percent. This was not expected to have any real effect since even 10 percent was a high enough requirement to prevent the excessive use of credit for buying stocks.

4. By May, 1953, the restrictive effects, not only of the previous actions of the Federal Reserve Board but also of the actions of other agencies, particularly the rise in interest rates following the Treasury hike in the interest rate on Government bonds, were being felt so seriously that the Federal Reserve Board reversed its action. It now began to buy, in the open market, 900 million dollars' worth of U. S. Government securities. This procedure, of course, was designed to have the opposite effect. Money was paid out to sellers who deposited it in banks, thereby raising bank reserves and expanding their ability to extend credit.

5. In July, 1953, the next expansion move was made. The reserves required on net demand deposits were reduced from 24 to 22 percent for New York and Chicago banks; from 20 to 19 percent for other city banks; and from 14 to 13 percent for country banks. Reducing the reserves they have to carry also has the effect of increasing their ability to extend credit.

6. Also in July, 1953, the Federal Reserve Board began purchasing more U. S. Government securities. This time they bought a rather large amount—1.7 billion dollars' worth. This was done in pursuance of an announced policy of easing money and credit in view of the business downturn.

7. In January, 1954, the Federal Reserve Board began buying another 900 million dollars' worth of U. S. Government securities.

8. February, 1954, saw the reversal of the action on discount rates taken a little more than a year earlier. They were reduced from 2 to 1¾ percent.

9. In April, 1954, the discount rates were reduced further—from 1¾ to 1½ percent.

10. By June, 1954, further reduction was made in the reserve requirements for New York and Chicago banks—from 22 to 21 percent.

11. July, 1954, saw a still further reduction in the reserve requirements for New York and Chicago banks—to 20 percent, and for other city banks from 19 to 18 percent.

12. In August, 1954, the reserve requirement for country banks was reduced from 13 to 12 percent.

This looks pretty much as if the Federal Reserve Board marched up the hill and then marched down again. Actually, at the beginning of 1955, the policy of the Federal Reserve Board is more likely to encourage inflation than it was when the Eisenhower Administration took office. The discount rate is down from 1¾ to 1½ percent; the reserve requirements are down from 24 to 20 percent for New York and Chicago banks, from 20 to 18 percent for other reserve city banks, and from 14 to 12 percent for country banks. In addition, through its open market operations, the Federal Reserve Board pumped a net of $2,700,000,000 of additional funds into the banking system.

It is no wonder, then, that responsible officials, led by Secretary of the Treasury Humphreys, are beginning to voice concern about the possibility of inflation unless great care is taken.

Primarily because the recent very large rises in the stock market are a highly publicized symptom of the easy money situation, the first reverse action was taken there. Early in January 1955 the margin requirements on loans for purchasing or carrying listed securities was raised from 50 to 60 percent. Just as the February, 1953, relaxation of the margin requirements was not expected to have any noticeable effect, it is unlikely that this very small reversal will mean much. It is more in the nature of a slap on the wrist administered to a naughty child, with a warning that he shouldn't run away again. It is hoped that the stock market will obey and stay within bounds; but if it does, it will not be because of the sanctions so far applied.

The real danger of inflation as a consequence of government policy arises from a somewhat different source. It is the danger that with the votes so evenly divided between Republicans and Democrats the parties will vie with each other over

(*Continued on page* 34)

Speed-Set Hydraulic Adjustment Affords

One Man...One Minute Product Control

Quick, Accurate Product Size Adjustment — No dismantling and no auxiliary equipment are required to change from one product size to another. Changing is instantaneous and precise with *Speed-Set* control.

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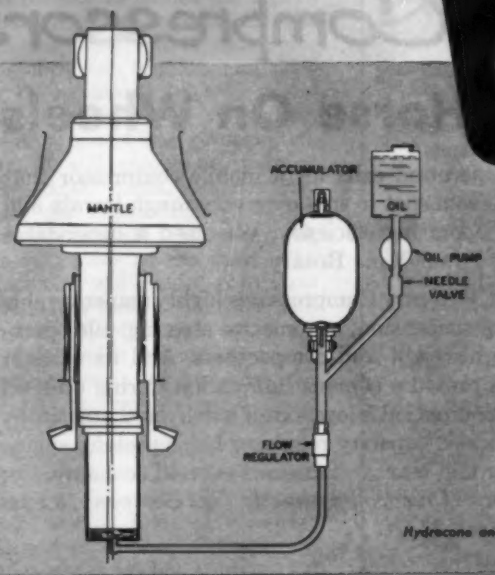
Fast Emergency Unloading and Tramp Iron Protection — If crusher stops abruptly because of power failure or other emergency, *Speed-Set* control facilitates fast clearing of crushing chamber.



How *Speed-Set* Control Works

Mainshaft assembly is supported on hydraulic jack. Oil pumped into or out of jack raises or lowers crushing mantle.

When tramp iron enters crushing chamber, oil from jack is forced into accumulator, allowing mantle to lower. Automatic reset returns cone to original setting after tramp material is passed.

For complete information, see your A-C representative or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for Bulletin 07B7145B.

A-4478

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news of the industry

PIT AND QUARRY

Census Bureau to Survey Mineral, Business, and Manufacturing Industries

Early this year the U.S. Bureau of the Census will launch censuses of business, manufacturing, and the mineral industries in 1954. Federal law places on the Bureau the responsibility of taking a full-scale census every five years covering American industry and trade. These quinquennial censuses provide benchmark data on the more important measurable phases of production and consumption of raw materials, their conversion into manufactured products, and the ultimate distribution of these products to consumers.

The Census of Mineral Industries is planned to be a mail canvass and will be co-ordinated closely with the Bureau of Mines statistical program. Joint schedules are being used insofar as feasible to reduce the reporting burden of the respondents. The census will collect data concerning the number, size, location, and character of operations, as well as information on number of workers, value of products, and principal expenses. It will enumerate approximately 35,000 mines, quarries, and oil and gas establishments.

The Census of Manufactures, which will cover an estimated 275,000 factories, will inquire as to plant identification, kind of industry, employment, payrolls, hours of work, cost of materials consumed, power equipment, water consumption, and value of products shipped. The Census of Business will cover approximately 3,000,000 retail, wholesale, and service establishments. Inquiries to be made will include location, kind of business, corporate relations, employment and payrolls, operating expenses, inventories, total annual sales, and credit sales.

The Bureau asks producers to observe these two points in filling out the forms: (1) make complete and accurate reports; and (2) return reports to the Bureau of the Census promptly.

All reports are kept strictly confidential. Information will be classified, tabulated, and finally published in such form that the operations of no single firm will be revealed. Information submitted is seen only by the Bureau's sworn employes, who are by law subject to severe penalties for disclosure.

Bonneville, Ltd., Wendover, Utah, plans to spend $300,000 over the next two years on new facilities to store 20,000 to 30,000 tons of potash. Also included in the expansion program will be structures to accommodate from 50 to 60 railroad box cars and moving the dryer, sampler, and other facilities to new sites.

Coming Events

February 14-17, 1955—Chicago. Annual meeting, American Institute of Mining and Metallurgical Engineers. Conrad Hilton Hotel.

February 21-24, 1955—Milwaukee. 51st annual convention, American Concrete Institute. Hotel Schroeder.

March 9-12, 1955—Boston. 47th annual convention and meeting, American Concrete Pipe Association. Sheraton-Plaza Hotel.

May 11-13, 1955—Hot Springs, Va. 20th annual meeting, National Industrial Sand Association. The Homestead.

June 26-July 1, 1955—Atlantic City. Annual meeting, American Society for Testing Materials. Chalfonte-Haddon Hall.

Ottawa Silica Company Buys Standard Silica Corp.; Creates New Subsidiary

The Ottawa Silica Company, Ottawa, Ill., a producer of all grades of whole grain and ground silica for the glass, ceramic, and foundry industries, has through a subsidiary, the Standard Silica Company, acquired all of the physical assets of the Standard Silica Corporation. The latter also operates a plant in Ottawa, Ill.

G. A. Thornton, president of both companies, has announced that Standard Silica will operate as a wholly-owned subsidiary of the Ottawa Silica Company. Substantial benefits to the customers of both companies will result from the integration of various research, engineering, and product development functions.

N. Y. Trap Rock Co. Plants Adopt 100,000 Man-Hour Plan

Wilson P. Foss III, president of New York Trap Rock Corporation, recently announced the inauguration of a new safety incentive award plan to be known as the "100,000 man-hour plan." In 1954 Trap Rock's three Hudson River plants will have worked about 1,300,000 man-hours.

Under the new plan, each New York Trap Rock plant which works 100,000 consecutive man-hours without a lost-time accident will be awarded $1,000. It will be possible, Mr. Foss said, for plants to win several such awards in the course of a year's time. The amount won will be distributed to individual employees on the basis of hours worked.

An expansion program for Standard Lime & Stone Company including stepped-up production of cement by an estimated 750,000 bbl. annually, has been disclosed by officials of the American-Marietta Company, new owners of Standard.

U.S. Bureau of Mines Predicts Cement Capacity Of Nation Through 1959

In October, 1954, the U.S. Bureau of Mines undertook a survey of future portland cement production capacity in the United States, as a service to the President's Advisory Committee on a National Highway Program. All portland cement producing companies in continental United States responded with estimates of year-end 1954, 1956, and 1959 capacities, on the assumption that the President's proposed road-building plans are substantially realized. Returns were audited and tabulated, and the results were transmitted to the President's committee.

As estimated by the producing companies, future capacities as of 1954, 1956, and 1959, for *continental* United States will be as follows:

1954	290,753,632 bbl.
1956	338,584,632 bbl.
1959	407,237,632 bbl.

Producers were not asked to designate plants or areas of planned expansion; so no attempt was made by the Bureau to compile a breakdown of the above figures by producing districts.

In addition to the above totals, 4,000,000- or 5,000,000-bbl. capacity will be available in Puerto Rico.

Big German-Built Carriers To Be Used by Natl. Gypsum

Melvin H. Baker, chairman of the National Gypsum Company, announced that two 15,000-ton cargo vessels are being built to the company's specifications in Emden, Germany.

They will be the largest ever to have operated in the gypsum industry and will be used to transport gypsum rock from the firm's new quarry near Halifax, Nova Scotia, to its plants at New York, Baltimore, and Savannah.

Orders for the ships, Mr. Baker revealed, were placed last October with Nordseewerke, a ship building concern in Emden. He stated that the first vessel will be delivered at Halifax next November and the second in February, 1956. They will be owned by an English concern and will fly the British flag. National Gypsum will charter the ships on a "long-term lease basis."

Argentine Cement Producer To Expand Crushing Facilities

Juan Minetti e Hijos, one of the major portland cement producers in Argentina, is planning to expand the crushing departments in its plants at Cordoba, Mendoza, and Salta. Equipment, to be delivered during the next six months, is to be furnished by the Allis-Chalmers Manufacturing Company.

The Argentine firm has ordered the following units: nine 636 Hydrocone crushers, two 42- by 23-in. A-1 jaw crushers, six 4- by 12-ft. Ripl-Flo vibrating screens, and three 4- by 8-ft. stationary grizzlies, plus the necessary motors, controls, and Texrope V-belt drives.

Other machinery to be installed to increase production at the three plants includes two feeders and 44 tunnel gates, with component parts for completing 14 belt conveyors.

$3,000,000 Expansion Okayed By Kaiser Gypsum Company

A $3,000,000 expansion of Kaiser Gypsum Company's Long Beach, Calif., gypsum products plant has been authorized by the firm's board of directors. This expansion will increase the productive capacity of the plant by more than 60 percent, and will double the present plant area.

It is expected that the enlarged plant will be in full production late this year. The existing plant will continue in operation during alterations. Most impressive unit of the expansion project at Long Beach will be the 35,000-ton, 16-sided, dome-shaped rock storage building, which will be of full cantilever construction. This structure will be used for storing raw gypsum under cover.

The Long Beach plant supplies the ten southern California counties, southern Nevada, and Arizona. Last year, a $100,000 plant was built on the Long Beach property for the manufacture of plaster retarder. It is the only plant of its type west of the Mississippi.

Kirkbride of Universal Atlas Succumbs to Heart Ailment

Paul Kirkbride, recently retired manager of the Universal Atlas Cement Company's plant at Independence, Kans., died of a recurrent heart ailment at an Independence hospital on January 11.

A native of St. Augustine, Fla., Mr. Kirkbride was graduated from Virginia Polytechnic Institute in 1911 with a degree in civil engineering.

Mr. Kirkbride joined Universal Atlas at its Northampton, Pa., plant in 1919 as an engineer and assistant maintenance superintendent. He then was transferred to the firm's Hannibal, Mo., plant and subsequently to the Independence, Kans., operation, where he was appointed plant manager in 1945.

December Building Totals In 37 Eastern States Highest in Dodge History

Unusually high December totals for construction in the 37 states east of the Rockies brought 1954 awards to a record-breaking high of $19,770,207,000, up 13 percent from the previous record set in 1953, according to the F. W. Dodge Corporation.

December awards ran 41 percent ahead of December, 1953. The total of $1,828,837,000 was not only higher than any previous December in Dodge's 64-year history, but was one of the highest monthly totals ever recorded in spite of the fact that winter is traditionally a slack period for contract awards.

All three basic Dodge categories showed gains over the previous month and over December, 1953. For December the totals were as follows: non-residential, $701,427,000, up 43 percent over November and 30 percent over December, 1953; residential, $761,577,000, up 7 percent over November and up 76 percent over December, 1953; and public works and utilities, $365,833,000, up 22 percent over November and up 13 percent over December, 1953. The grand total of $1,828,837,000 was up 22 percent over November and 41 percent over December, 1953.

For the year 1954 the totals were as follows: non-residential, $7,110,348,000, up 2 percent over 1953; residential, $8,518,291,000, up 31 percent; public works and utilities, $4,141,568,000, up 3 percent. The overall total was up 13 percent.

The grand total of Dodge Reports showed a gain each month except April, over the total for the same month of 1953. In April it was down only 3 percent. December's gain of 41 percent over December, 1953, was the greatest increase of any month except June, which showed a 43 percent increase.

Dewey Portland Cement Co. Sells 30,000 Shares to Public

A public offering of 30,000 shares (common stock) of the Dewey Portland Cement Company has been made from the estate of the late Mrs. O. G. Tyler, widow of the former owner, H. F. Tyler. The $19,000,000 concern was hitherto largely a family-owned firm, and for this reason no financial reports had been released to the press.

A prospectus issued in connection with the stock offering reveals that sales for 1953 were $11,334,683, as compared with $10,839,673 for a year earlier. The firm has outstanding 594,630 shares of common stock.

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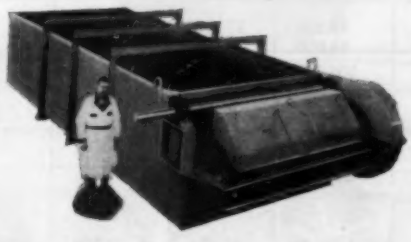
AN EAGLE COARSE MATERIAL WASHER-DEWATERER

is doing an excellent job for Jefferies & Betts, Inc., at their Roanoke, Texas, plant. They report results ***"better than expected"*** in washing all of the clay out of the material being processed. Screened sand, pea gravel to minus 1½" are washed clean. The Eagle unit is equipped with four sets of paddle flights at the feed-in end of the tub to assure a thorough abrading and scrubbing action. Positive rising-current wash water carries clay and debris up and out of the tub.

NEW! 48" EAGLE LOG WASHER



Handles material up to 8" . . . capacity up to 150 tons per hour (depending upon material size and amount of foreign matter to be removed). Tub is 9'4" wide x 24' long. Both logs 48" diameter. A heavy duty money-maker that will grind it out day after day. Send for the facts!

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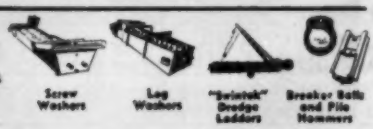

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Industry Mourns Passing Of "Captain" J. H. Duffy, Ohio River Sand Co. Head

J. Hamilton Duffy, 80, chairman of the board of the Ohio River Sand Company, Louisville, and one of the founders of the National Sand and Gravel Association, died recently at his home in Louisville, Ky., after an extended illness.

Mr. Duffy had been associated with the Ohio River Sand Company for 45 years, and became president of the concern in 1945. Six years later he resigned from that post to become chairman of the board. From 1930 to 1954 he served as president of the Cumberland River Sand Company, Nashville, Tenn.

In connection with his sand-and-gravel interests he had been actively engaged in river transportation for many years, and was known throughout the Ohio and Mississippi valleys as "Captain" Duffy.

September, 1954, Lime Sales Down Slightly from August

In September, 1954, domestic sales of open-market lime (624,271 short tons) decreased slightly from the previous month, according to reports turned in by producers to the Bureau of Mines, United States Department of the Interior. Agricultural and refractory uses increased over the previous month, whereas decreases were noted for building, chemical, and other industrial uses. The table shows sales by types and major uses.

● The dramatic dragline photo appearing on this month's cover was taken at International Minerals and Chemical Corporation's Noralyn phosphate mine near Bartow, Fla. It shows a Bucyrus-Erie 650B electric walking dragline (having a 175-ft. boom and 17-cu. yd. bucket), nicknamed "Tillie the Toiler", dumping phosphate matrix into the well. The material is then washed down by means of a pair of 3-in. hydraulic monitors (each operating at 3,500 g.p.m. at 100 p.s.i.), and a high-capacity pump then transfers the slurry to the washing plant at Noralyn. Since this photo was taken, "Tillie" has been moved to the Achan mine (near Mulberry).

For a feature story dealing with the use of two-way radio in International's Florida Phosphate Department, see p. 59.

Wiley W. Stephens, 87, a founder and former chairman of the Stephens-Adamson Company, Aurora, Ill., died recently at his home in Pasadena, Calif.

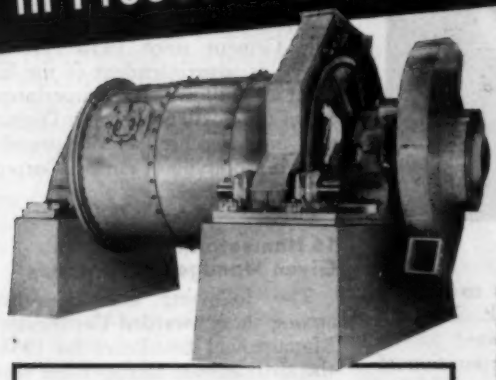
Lime Sold by Producers[1] in the United States, in Specified Periods of 1953-54, by Types and Major Uses, in Short Tons

	August	September		January-September	
	1954	1954	1953	1953	1954
By types:					
Quicklime	469,097	458,093	539,971	4,994,309	4,100,641
Hydrated lime	163,159	166,178	165,318	1,431,433	1,419,843
Total lime[2]	632,256	624,271	705,289	6,425,742	5,520,484
By uses:					
Agricultural:					
Quicklime	8,347	8,341	9,578	51,532	58,886
Hydrated lime	14,511	17,118	16,984	158,293	159,115
Total	22,858	25,459	26,562	209,825	218,001
Building:					
Quicklime	16,294	16,390	17,810	146,337	143,732
Hydrated lime	90,242	88,010	85,158	705,620	730,265
Total	106,536	104,400	102,968	851,957	873,997
Chemical and other industrial:					
Quicklime	307,193	293,233	320,759	3,025,316	2,616,094
Hydrated lime	58,406	61,050	63,176	567,520	530,463
Total	365,599	354,283	383,935	3,592,836	3,146,557
Refractory (dead-burned dolomite)	137,263	140,129	191,824	1,771,124	1,281,929

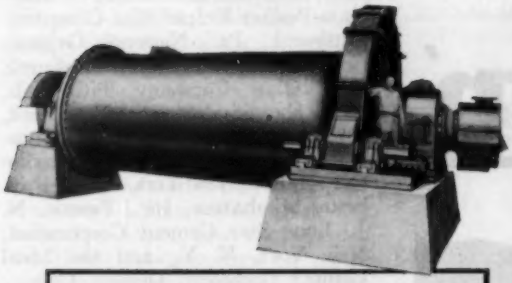
[1]Also includes a small quantity of captive tonnage (6-7 percent of the total reported herein) to maintain comparability with the annual lime statistics. The monthly canvass excludes the output of plants producing less than 10,000 tons a year.

[2]Approximately 60 percent of lime produced is high-calcium and 40 percent high-magnesium.

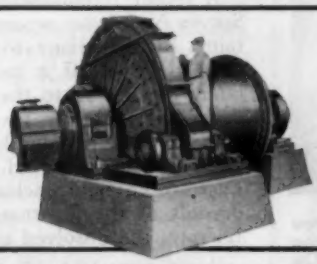
Dependable—Precision Built
NORDBERG GRINDING MILLS
Assure Maximum Output—Low Costs in Processing of Ores, Minerals and Cement



NORDBERG 10′-8″ x 17′ Wet Grinding Ball Mill showing scoop feeder.



NORDBERG 9′-6″ x 24′ Wet Grinding Pebble Mill for non-ferrous milling.



NORDBERG 9′-6″ diameter x 11′ long Dry Grinding Mill.

MORE than half a century of progressive engineering achievement, combined with quality production in modern manufacturing facilities, have won for Nordberg a foremost position in the field of heavy machinery manufacture.

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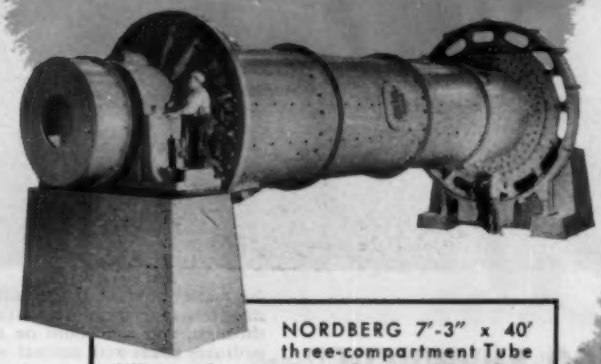
Nordberg manufactures Ball, Tube, Rod and Compartment Mills, of grate, overflow and peripheral discharge types for wet or dry grinding service, in sizes ranging to 13′-0″ diameter, and in lengths to 40′-0″.

Competent engineering services are available for new processing plant design or modernization of existing plants.

For large or small operations, you can depend on Nordberg Machinery to deliver maximum output at lowest possible cost.

NORDBERG MFG. CO., Milwaukee, Wisconsin

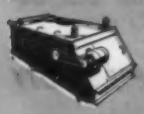


NORDBERG 7′-3″ x 40′ three-compartment Tube Mill manufactured for a large cement plant.

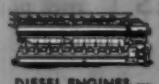
SYMONS GYRATORY CRUSHERS

SYMONS CONE CRUSHERS

SYMONS VIBRATING GRIZZLIES



SYMONS VIBRATING SCREENS



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CRUSHERS SYMONS SCREENS NORDBERG

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Willingham, Leake Named To New Louisville Posts As Merger Is Effected

Corporate changes in the Louisville Cement Company have created new titles, that of vice-president for D. E. Willingham and that of general superintendent of production for W. P. Leake, according to an announcement issued by E. D. Hill, president of the company.

D. E. Willingham

W. P. Leake

Louisville Cement Corporation of Indiana, a manufacturing subsidiary, was merged on December 31, 1954, with the parent company. All debts, claims, or liabilities of the Louisville Cement Corporation will be assumed by the surviving company, and any contracts entered by the Louisville Cement Corporation will continue in effect with the Louisville Cement Company.

Mr. Willingham, who was president of the manufacturing subsidiary from 1950 to 1954, joined the production staff of the Louisville Cement Company in May, 1925, and since that time has held various assignments in the production department.

Mr. Leake has been with Louisville Cement since 1937. He has served as superintendent of the lime plant at Milltown, Ind., superintendent of the Portland Cement Division, and most recenlty as vice-president of the Louisville Cement Corporation (1950-1954).

16 Nonmetallic Producers Given Management Awards

The following companies were among those awarded Certificates of Management Excellence for 1954 in the sixth annual management survey conducted by the American Institute of Management:

Philip Carey Manufacturing Company, Lockland, Cincinnati, O., Harbison-Walker Refractories Company, Pittsburgh, Pa., National Gypsum Company, Buffalo, N. Y., Pittsburgh Plate Glass Company, Pittsburgh, Pa., Ruberoid Company, New York, N. Y., United States Gypsum Company, Chicago, Ill., Johns-Manville Corporation, New York, N. Y., Raybestos-Manhattan, Inc., Passaic, N. J., Lone Star Cement Corporation, New York, N. Y., and the Ideal Cement Company, Denver, Colo.

A recent Illinois State Geological Survey *Newsletter* reported that certain Illinois limestones, when crushed, give off a peculiar fetid odor. According to the report, hydrogen sulphide is believed to be the culprit. It is thought that hydrogen sulphide gas is dissolved in numerous microscopic fluid inclusions in the crystals of the limestone. Crushing liberates the dissolved gas.

Mine production of bauxite by the eight companies operating in the United States decreased from 402,057 tons in the first quarter to 370,508 in the second quarter of 1954; and production for the first six months of 1954 was 2 percent less than for the corresponding period of 1953, according to the U.S. Bureau of Mines.

Another Job Done Better With The ALL-NEW 'Jeep'®

"GO-ANYWHERE" TRANSPORTATION

No matter how rough the going—when you need transportation that will always get you through, you can count on the 'Jeep'. On ordinary roads with normal weather conditions, the 'Jeep' operates in economical 2-Wheel-Drive just as does the usual vehicle. In heavy weather, bad roads or over rough open country, you can shift instantly into 4-Wheel-Drive with the power to bull you through. With the 'Jeep' you can get men or cargo to remote jobs any day in the year with 'Jeep' 4-Wheel-Drive.

WILLYS MOTORS, INC., TOLEDO 1, OHIO

The 'Jeep' Family of 4-Wheel-Drive Vehicles . . UNIVERSAL 'JEEP' • TRUCK • STATION WAGON • PANEL DELIVERY

THE WORLD'S MOST USEFUL VEHICLES

A.R.B.A. Pledges Support For 10-Year Highway Plan At New Orleans Meeting

The American Road Builders Association held their 53rd annual convention at the Roosevelt Hotel, New Orleans, La., January 10 through 13. A highway materials and supplies exhibit was a feature of the affair.

The association declared that it is prepared to handle the $101,000,000,000 interstate 10-year highway program proposed by President Eisenhower. Hal G. Sours, consulting engineer and past-president of the association, said: "The A.R.B.A. task forces find that not only are the engineering profession and highway industry ready to undertake a 10-year, $101,000,000,000 highway construction program, but also that such a program is well-timed in view of the additional work capacity which now exists."

Representative Jesse P. Wolcott of Michigan, ranking minority member of the House banking and currency committee, said he believes the program has "a very good chance" of becoming a reality.

Other speakers included the following: Senator Dennis Chavez, N. M., who will be chairman of the Senate committee on public works in the new Congress; Senator Francis Case, S. D., now chairman of the Senate subcommittee on roads; Representative George H. Fallon, Baltimore, Md., next chairman of the House subcommittee on roads; Representative J. Harry McGregor, West Lafayette, Ohio, now chairman of the House subcommittee on roads; and Representative Jesse P. Wolcott, Port Huron, Mich., now chairman of the House committee on bankink and currency.

The general session held Monday, January 10, included a talk by Governor Robert F. Kennon of Louisiana, chairman of the Governors' Conference, who reported on the viewpoints of the 48 governors concerning an expanded national highway program. Other speakers at this session were Senator Chavez and Representative Wolcott. The latter's subject was the financing of the new road building program.

The second general session featured addresses by Representative McGregor, and Representative H. E. Bailey, general manager of the Oklahoma turnpike authority. In the afternoon Representative Fallon delivered a talk on the taxpaper's views on the proposed highway expansion program.

Senator Case and William Randolph Hearst Jr. were the speakers at the third general session. Mr. Hearst discussed the topic of newspaper support for improved highways. The fourth and final session was devoted to a series of four comprehensive reports by four committees of the association.

During the business session the following officers were chosen: J. N. Robertson, director of highways, Washington, D.C., president; Charles M. Noble, New Brunswick, N.J., vice-president, northeastern district; Charles W. Smith, Pensacola, Fla., vice-president, southern district; Julien R. Steelman, Milwaukee, Wis., vice-president, central district; George T. McCoy, Sacramento, Calif., vice-president, western district; and Jennings Randolph, Washington, treasurer.

A recent publication on Virginia aggregates described an adhesive test of stone for bituminous material. Major findings indicated that limestone and dolomite show excellent adhesion, and that the more acid igneous and metamorphic rocks, that is those high in silica (like granite), show less adhesion than the basic igneous and metamorphic rocks (like gabbro and basalt).

New Peerless Cement Plant Planned for Detroit Area To Add Million Bbl. Yearly

Plans for the erection of a new cement manufacturing plant with an annual capacity of 1,000,000 bbl., in the metropolitan Detroit area have been announced by Walter C. Russell, president of the Peerless Cement Corporation.

It was indicated that construction will start, and that cement will be available for distribution in the Detroit area late in 1956 or early in 1957.

Erection of the new facilities represents another phase of the firm's expansion and modernization program, which was launched soon after the close of World War II. Improvments already completed have increased Peerless production facilities by 85 percent since 1946, at a cost of more than $7,000,000.

Officials of the company based their decision to undertake this part of the program upon their conviction that construction activity in Michigan, Ohio, and Indiana will be substantially greater in the next 10 or 15 years, and that additional manufacturing facilities will be needed to fulfill the anticipated requirements.

Another Job Done Better With The ALL-NEW 'Jeep'®

"GO-ANYWHERE" TRANSPORTATION

Steep grades—up to 60 % with full load, are all in the day's work for the sturdy 4-Wheel-Drive 'Jeep'. For year 'round, all-weather transportation for men or cargo, the rugged 'Jeep' gives real assurance of always getting to destination on schedule. This dependability of the 'Jeep', its ability to take rough going on road or over open country make it the favorite vehicle to transport men and equipment to hard-to-reach jobs.

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The 'Jeep' Family of 4-Wheel-Drive Vehicles . . . UNIVERSAL 'JEEP' • TRUCK • STATION WAGON • PANEL DELIVERY

THE WORLD'S MOST USEFUL VEHICLES

Dr. R. H. Bogue Retires After Brilliant Career In Portland Cement Field

Dr. Robert H. Bogue, outstanding international authority on portland cement and organizer of the research program of the National Bureau of Standards' Portland Cement Association Fellowship, retired on December 17, after 30 years of service.

Dr. Bogue received his bachelor of science degree in chemistry from Tufts College in 1912, and three years later his master's degree from Massachusetts Agricultural College—now the University of Massachusetts. After a two-year tenure on the faculty of the Montana State College, he accepted an appointment as a fellow at the Mellon Institute of Industrial Research, where he remained five years. During this period he wrote two of his books, contributed 30 technical papers, and received his doctorate from the University of Pittsburgh. The ensuing two years were spent on the faculty of Lafayette College in Easton, Pa.

Under Dr. Bogue's leadership, a high early-strength cement was developed which reduced from 48 hours to 7 hours the time a highway has to be closed after the concrete has been poured. Dr. Bogue also played an important part in the development of special cements used in the construction of Boulder Dam.

During the last 30 years the publication of 69 technical papers and a comprehensive treatise has brought Dr. Bogue world-wide recognition for pioneering research in the portland cement and allied industries.

Dr. Robert H. Bogue

Dr. Bogue is the author of several books, notably *The Chemistry of Portland Cement*, a comprehensive survey of the fundamental theoretical conceptions and practical applications of cement chemistry.

The unusual career of Dr. Bogue has been highlighted by invitations from foreign countries to attend meetings and serve as consultant to their governments on matters pertaining to cement. He has been abroad four times in the interest of the cement industry. He is a member of the Portland Cement Association, the American Chemical Society, the American Concrete Institute, the International Symposia on the Chemistry of Cement, Phi Beta Kappa, and Sigma Xi.

Bureau of Mines Report On U. S. Mineral Output Shows Decline from 1953

Mineral production in the continental United States during 1954 dropped slightly below the record set in 1953, but was nevertheless the second-highest in history, according to a year-end summary released by Secretary of the Interior Douglas McKay. The summary was prepared by the Bureau of Mines.

On the basis of preliminary data, the Bureau estimates the total value of last year's mineral output at $13,820,000,000, or 4 percent below the 1953 record of $14,408,000,000. Production of nonmetallic minerals other than fuels rose slightly during 1954, but that of fuels and metals declined, as shown in the following table.

The all-time high production of fertilizer minerals achieved in 1953 was equalled in 1954; phosphate rock production was about the same, and potash production increased by 7 percent. Domestic output of mica, asbestos, barite, and crude gypsum equalled or slightly exceeded 1953 levels, and high demand for portland cement sent production of that commodity to a new record high—4,000,000 bbl. more than was produced in 1953. Consumption of expanded perlite, used in plaster and concrete mixes, continued to increase.

Production of minerals for the fertilizer, construction, and chemical industries rose about 1 percent in 1954. Increased output of portland cement, potash, perlite, and sulphur made for sharp drops in production of graphite and fluorspar, and moderate dips in feldspar and magnesite.

Value of Mineral Production in Continental United States, 1953-54

	(Preliminary) 1953	(Estimate) 1954
Nonmetallic minerals:		
Fuels	$10,264,000,000	$ 9,974,000,000
Other	2,355,000,000	2,369,000,000
Total nonmetallic	12,619,000,000	12,343,000,000
Metals	1,789,000,000	1,477,000,000
Grand Total	14,408,000,000	13,820,000,000

During 1954 potash production reached an estimated 2,000,000 short tons of K_2O equivalent, valued at nearly $69,000,000.

The government continued to pay higher-than-market prices for strategic grades of domestic muscovite block, film, and hand-cobbed mica for the national stockpile. Mica production consequently remained at the 1953 level of about 850,000 lb. and comprised about 11 percent of total sheet mica supply. Demand for ground mica hit a new high. Sales of the dry-ground variety may have passed the 60,000 tons used in 1953, and production of wet-ground mica increased about 6 percent.

Feldspar and magnesite production dropped 5 to 10 percent in 1954, and graphite output was only about 50 percent of the 1953 figure because of reduced buying for the national stockpile. Production of clay, talc, kyanite, and olivine was unchanged; and magnesium chloride, used for production of magnesium metal, remained at the 1953 level.

Asbestos output in the United States was small, as in 1953, but Canadian production capacity increased during the year, and supplies were ample for current demands.

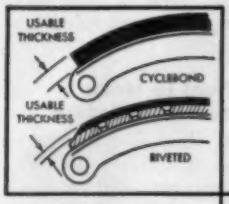
Continued heavy demand for portland cement spurred production to a new record high of about 268,000,000 bbl. Most plants operated at or near capacity, and a new plant went into operation at Roberta, Ala. Construction began during the year on a portland cement plant at Mojave, Calif.

Fluorspar production, which had declined slightly in 1953, fell off more sharply last year, and several large producing installations were shut down. Imports declined, but still exceeded domestic output considerably. Consumption slipped from a record 587,000 tons in 1953 to an estimated 475,000 tons in 1954, and for the first time the hydrofluoric acid industry used more than the steel industry.

The quantity of crude gypsum mined domestically last year was only slightly higher than in 1953. More was imported, however, and more gypsum products were produced. During the year there was a "gypsum rush" to newly-discovered deposits near Shoals, Ind. Major producers vied for priority in developing the mineral, believed to lie largely on State-owned land.

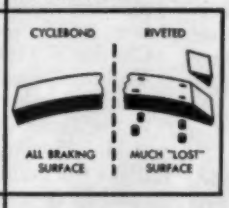
Sulphur production increased moderately in 1954.

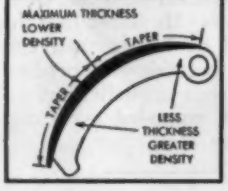
Another typical example of Dodge truck's extra-value engineering



More usable thickness.
Dodge truck Cyclebond brake linings can be used virtually through their full thickness. This gives the linings many thousands of miles of added life. Riveted linings should be worn only to rivet heads.

More usable surface.
Every square inch of Cyclebond lining area is braking surface. Riveted linings, because of rivet holes and mitered ends, have up to 10% less braking surface.





Tapered for easy stops.
Cyclebond lining is more tightly compressed at ends, gives a gradual taper. Thick center of lining makes first contact...increased pressure brings the ends into contact. Braking is smooth, even.

Why you go more miles before relining with Dodge truck brakes!

You can be sure of lower brake maintenance, more miles before relining, with Dodge truck brakes and famous Dodge truck Cyclebond linings. And that's in addition to the quick, positive stops, the smooth action, for which Dodge truck brakes are famous.

Long-lasting, reliable brakes are just one example of the extra-value engineering that means more for your money when you buy . . . more money saved over the life of your truck. Get the facts on how extra-value engineering saves you money; see your dependable Dodge Truck dealer.

DODGE "Job-Rated" TRUCKS

A PRODUCT OF CHRYSLER CORPORATION

H. W. Overly Sr. Honored After 67-Year Career With Louisville Cement Co.

Herbert W. Overly Sr., formerly of the Louisville Cement Company, was featured in a recent issue of the firm's house organ, *Speed Mixer,* as one of its "men of the years". He retired last December from his duties as assistant treasurer of the company after having served the firm for 67 years.

Mr. Overly began his career with the Western Cement Association, which he served as bookkeeper and auditor. Upon the dissolution of the association in 1907, he became auditor of the Louisville Cement Company, the largest of the owning members of the association.

In 1919 he was named general auditor, and five years later he was appointed assistant treasurer, the position he held until his retirement.

Koss Elected to Head A.G.C.; Rooney Named Vice-President

George C. Koss, president of the Koss Construction Company, Des Moines, Iowa, has been elected president of The Associated General Contractors of America for 1955, according to an announcement released by H. E. Forman, A.G.C. managing director.

Frank J. Rooney, president of Frank J. Rooney, Inc., Miami, Fla., building contractor, has been elected vice-president for the coming year.

Mr. Koss succeeds John MacLeod, president of Macco Corporation, Paramount, Calif., and Mr. Rooney takes over the office Mr. Koss held in 1954. Both Mr. Koss and Mr. Rooney will serve a one-year term and will be installed at the close of the 36th annual A.G.C. convention, which is to be held from March 14 to 17 in New Orleans.

Zonolite Offers Data Book On Many Uses of Vermiculite

Over 40 industrial applications of vermiculite are listed in the 1955 revision of a data book offered by the Zonolite Company, Chicago. The publication lists the chemical and physical properties of vermiculite.

Originally published in 1953, the book has been brought up to date to familiarize researchers with latest research findings and practical uses of vermiculite. A three-page section describes the mineral's uses in terms of its absorption, catalytic, dielectric, filler, insulation, lubrication, resiliency, and thermal expansion characteristics. A selected bibliography is included for the first time, along with a list of vermiculite publications.

Copies of the 16-page data book are available from the Zonolite Company, 135 S. La Salle St., Chicago 3, Ill.

Story of Caterpillar Told In Commemorative Volume

Caterpillar Tractor Company has added its story to the rapidly growing list of corporate histories in a recently released book entitled *50 Years on Tracks.* This 104-page, hardbound book is one of the highlights of the "50 Years on Tracks" commemorative program conducted by Caterpillar during 1954 to mark the 50th anniversary of the crawler tractor. (A predecessor, the Holt Manufacturing Company, is credited with introducing the world's first practical track-type tractor in 1904.)

The heavily-illustrated book is a series of separate, chronological essays. The book starts with the combines and tractors which preceded the first crawler of 1904, and each important step of crawler evolution is traced photographically.

Distribution of *50 Years on Tracks* is principally through Caterpillar dealers. Price per copy, $1.25.

Scientist Produces, Identifies New Type of Sand Ingredient

A new type of silica was produced and identified by Dr. Paul R. Keat, now of the Norton Company, Worcester, Mass., while he was doing graduate work at Rutgers University.

The silica is a very fine crystalline substance less dense and with a lower refractive index than quartz, the silicon-oxygen combination that is familiar in sand. It was manufactured under high temperature and pressure during laboratory experiments, silicic acid or silica gel as the source of the silica.

The structure of the new silica is unique, and seems to be the cause of a slight contraction with temperatures up to about 1,020 degrees F.

Newly Issued Booklet Lists Heavy-Duty Lubricating Oils

A 48-page booklet listing the tradenames of over 1,200 lubricating oils offered by 366 oil companies which meet certain requirements for heavy-duty industrial engines has been published by the Internal Combustion Engine Institute, 201 North Wells Street, Chicago, Ill.

The booklet combines the results of previous efforts of several engine manufacturers to list lubricating oils. It indicates the properties claimed for a given oil by the supplier whose trade name is on that oil. Price, 20 cents per copy.

John N. Robertson Chosen '55 President of A.R.B.A. Succeeding R. M. Reindollar

John N. Robertson, director of highways for the District of Columbia, has been formally elected president of the American Road Builders' Association. He succeeds Robert M. Reindollar, engineer consultant of Baltimore.

Mr. Robertson's entire career has been spent with the District of Columbia Department of Highways, where he began working in 1917 in one of the department's engineering field parties. In 1941 he was appointed engineer of streets, in charge of all activities of the Street Division of the Department of Highways.

W. Germany's Cement Output Sets New High Record in 1954

According to reports from abroad cited in the New York *Journal of Commerce,* West Germany cement production is likely to exceed 16,000,000 tons in 1954, thus setting a new output record. Production in the first ten months of 1954 amounted to 13,700,000 tons, against 12,900,000 tons in the corresponding period of 1953, in spite of unfavorable weather conditions in the early months of 1954. Exports of cement averaged 9 percent of production during the first ten months of 1954.

Cement production in Western Germany is estimated to be six times as high as that in the Eastern zone, although the West German population, is less than three times as large as that of the Soviet-occupied territory.

W. Virginia Plant to Make Aggregate from Coal Refuse

Construction has begun on a $100,000 plant at Ceredo, W. Va., in which an aggregate will be made from coal refuse. According to Charles N. Howard, president of the Trulite Corporation, the aggregate will be made from refuse obtained at the Truax-Traer Corp. at Ceredo.

Mr. Howard indicated that the plant will employ a process he developed in co-operation with the U. S. Bureau of Mines. He added that the aggregate will be lighter than cinders. Initial operation will produce about 40,000 tons annually, but capacity will be expanded eventually to 150,000 tons.

Ideal Cement Company has opened a $250,000 bulk storage plant at Salt Lake City, Utah, which will be used to store cement from Ideal's operation at Devil Slide, Utah. Capacity of the plant is 1,500 bbl.

Down went the overhanging rocks ...and the cost of getting them down!

REMINGTON INDUSTRIAL GUN Cuts $85.00 job to $9.50 at quarry

"It used to cost us about $85 each time we had to remove overhanging rocks from our quarry—now with a Remington Industrial Gun we do the whole job for $9.50." That's the report from a zinc mine in Alabama.

Savings like this are common. The Remington Industrial Gun saves hours of hazardous work . . . can be aimed, loaded and fired in seconds. Mount it on a truck, a tripod or a mobile chassis. Set it up in any part of your mine or quarry. You'll find real versatility in this fast, safe way of removing obstructions. The U.S. Bureau of Mines, for example, has used it for dislodging large icicles at distances *up to 200 yards!*

BEST WAY TO REMOVE KILN RINGS, TOO. A few well-placed shots with the Remington Industrial Gun loosen rings, cause them to fall when kiln is rotated. Minimum downtime! Big gains in production!

REMINGTON INDUSTRIAL SHELLS have tremendous smashing power. They're loaded with a powerful 3-ounce lead projectile that develops 7,475 foot-pounds' muzzle energy.

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Please send me your free folder describing the Remington Industrial Gun.

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"If it's Remington—It's Right!"

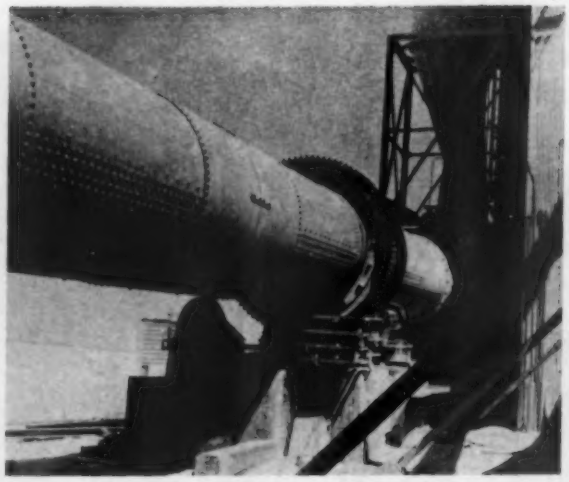
Remington DUPONT

Benefits of Hard-Facing Kiln Support Trunnions Proved at Nevada Plant

Processing plants in the pit-and-quarry industries employ at least 1,000 rotary kilns to burn or calcine cement, lime, and a variety of other nonmetallic minerals. Some of these are in excess of 500 ft. long and, depending upon their length, turn on from 2 to 10 tires, or riding rings, supported by trunnion rolls.

Until recently it was felt that the steel in the trunnions should be somewhat softer than that in the tires, allowing the trunnions to absorb most of the wear. The theory probably had its origin in the fact that the trunnions were a good deal easier and considerably cheaper to replace than the large-diameter tires.

Present-day thinking, however, backed up by actual field tests, indicates that much greater service life with kiln tires can be obtained when the rings ride on hard-faced rolls. The tests seem definitely to prove that softer, unprotected rolls wear rapidly and actually transfer this wear to the tires themselves.



One of the rotary kilns at Eagle-Picher's diatomaceous earth plant near Clark, Nev.

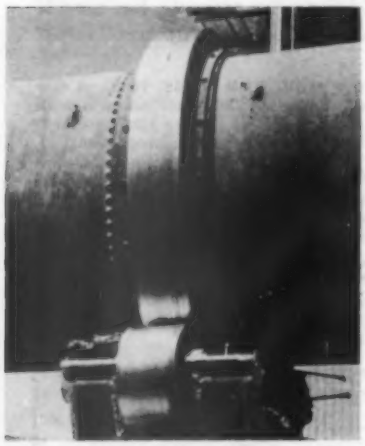
A rather conclusive example is provided in the reconditiong about two years ago of severely abraded tires and the trunnions on the rotary kilns used to process diatomaceous earth in the Clark, Nev., plant of the Eagle-Picher Company, near Reno. This plant has been in operation since 1947. The task of rebuilding the badly-worn kiln tires and trunnions was assigned to the Sierra Machinery Company, which operates a custom automatic-welding shop in Reno. The procedure developed for returning the tires and trunnions to serviceable condition proved relatively inexpensive when compared with the cost of replacement. Periodic inspection of the parts in use shows both tires and hard-faced trunnions are holding up much better than they formerly did.

The tires had been in service for about 4½ years and had worn as deeply as ½ in. in spots, necessitating the machining of a full half-inch off the diameter to true them. They were turned down without demounting while the kiln was rotated.

The rolls were brought to size by automatic welding, according to accepted welding procedures. About 125 lb. of Stoody 106 hard metal was required for each trunnion brought into Sierra's shop for hard-facing. On completion of welding, the desired smooth finish was attained by machining on a lathe.

To prove the advantages of hard-facing, only one of the kilns received hard-faced trunnions. Trunnions on the second kiln were merely machined. After six months' service, the softer rolls had already begun to groove while the Stoody 106 hard-faced trunnions had polished and actually improved the surfaces of the mated tires!

A closeup of a tire and hard-faced trunnion. Note the polish and square running surface.



This tire and trunnion were machined, but the trunnion was not hard-faced. Note the grooving present after only 6 months of service.

N.S.C. Helps Small Firms Better Accident Control

National Safety Council's Small Business Program, which was put on a full time basis in 1951, has been ensured of continued progress through the increase of its grant from the National Association of Mutual Casualty Companies to $24,-500. The added funds will enable the program to extend even more help to associations, local safety councils and other business groups, to do more to control work accidents. Many industries and local groups report injury rate reductions exceeding 50 per cent after only a few years of organized safety effort with substantial savings in increased production, improved employee relations and public goodwill.

A. M. Baltzer, director of the Council's Small Business Program, points out that the Council's chief targets are the small, independent firms with fewer than 100 employees, in both manufacturing and non-manufacturing industries. A booklet, *Plus Costs*, available without charge from the Council, tells how to avoid wasteful accidents.

Elevator Needed to Reach Top of This 145-Ft. Shovel

A coal-stripping shovel, believed to be the biggest land vehicle in the world, is now being built for the Hanna Coal Company Division of Pittsburgh Consolidation Coal Company by the Marion Power Shovel Company of Marion, Ohio.

The whole unit will be 50 percent larger than any other existing equipment of its kind. Its total weight is 5,000,000 lb., and it is 145 ft. high, as high as a 12-story building. A 1,000-lb. capacity elevator will be installed to reach the control section. The giant shovel will be powered by 16 motors and will cost $2,500,000.

Here's the Hottest News in Years

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combining
the Finest in portability!!
and
the Ultimate in crushing efficiency!!

2 GREAT NAMES IN

join in the newest, finest portable

Cedarapids

Built by IOWA

• CEDARAPIDS . . . and SYMONS! Wherever there's crushing, those two names are synonymous with the best and most efficient equipment available.

Now, in these brand new Cedarapids-Symons Cone Crushing Plants, they are joined to give you a plant that combines the great mobility of Cedarapids portable design with the high capacity and low-cost operation of Nordberg-built Symons Cone Crushers.

The result is an aggregate producer's dream! A highly mobile, rugged plant that gives you big volume, low-cost finished crushing of even the hardest or most abrasive rock or gravel to the uniform, finely crushed aggregate required in so many specifications today.

COMBINE THESE

Cedarapids Portability . . . . . .

- *100% portability!* Easy to take down or set up . . . wheel right into position in the pit or quarry and start producing.
- Meets legal load limitations.
- Use of Horizontal Vibrating Screen permits lower over-all height.
- *Low maintenance* is another great Cedarapids advantage! Exclusive life-seal bearings on all troughing and return rolls, self-aligning bearings throughout, disc clutches, stress relieved screen box, free use of alloy steel, easy access for lubrication and service adjustments.

Use a Cedarapids Portable Primary with the Cedarapids-Symons Cone Crusher Secondary

A Cedarapids Portable Primary ahead of your Cedrapids-Symons Cone Crusher Plant increases production still more, especially in quarry operations. The big Cedarapids 3240 Portable Primary will crush from 150 to 300 tons of big quarry rock. The jaw crusher, with 1280 sq. in. jaw opening, will take rock up to 32" x 40" in size and quickly reduce it to 6" feed for the Symons Cone. Cedarapids Jaw Crusher Primaries are available in sizes from 15" x 24" to 32" x 40". Cedarapids Portable Primaries are also available with Double Impeller Impact Breakers for many quarry conditions.

CRUSHING KNOWN THE WORLD OVER

crushing plants ever offered!

SYMONS®
CONE CRUSHERS

Built by NORDBERG

● Built by Nordberg Mfg. Co., the Symons Cone Crusher is famous throughout the world as the most outstanding crusher ever developed for producing high tonnages of desirable fine-crushed product with the economy that puts more take-home profit in your pocket. It has been proved again and again on every type of job . . . from trap rock to limestone . . . for fast reduction of large size feed to a constant, uniform finished product.

Joining the big output of a Symons Cone Crusher with the high screening capacity of a Horizontal Vibrating Screen in this new Cedarapids Portable Plant gives you the best production features of a permanent installation, adds extremely low operating and maintenance costs . . . and puts it on wheels!

SYMONS . . .
A REGISTERED NORDBERG TRADEMARK

GREAT FEATURES

. . . . . Symons low-cost reduction assures uniformly fine-crushed products

- Controlled feed combined with high impact velocity and wide throw of the crushing head permits rapid flow of material and high ratio of reduction in crushing cavity.
- Maximum utilization of the crushing surfaces.
- Produces commercial aggregate from 6" down in one stage, with minimum circulating load.
- Wide adjustment for quick, positive product size changes.
- Requires much less power and liner replacement than other types of crushers.
- Working mechanism entirely enclosed for years of service with minimum maintenance requirements.

IOWA
MANUFACTURING COMPANY
Cedar Rapids, Iowa, U.S.A.

IOWA MANUFACTURING COMPANY,
Cedar Rapids, Iowa, U.S.A.

Gentlemen:

QUICK! Send me full information about the new Cedarapids-Symons Cone Crusher Plant.

Name_____

Company_____

Address_____

City_____ State_____

Cedarapids

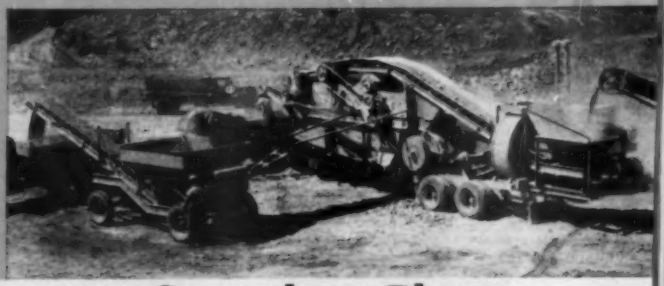
Built by IOWA

Money-Makers increase your Profit

Portable Primary Plants

You can step up production and profits even more by using a Cedarapids Portable Primary with a Vibrating Grizzly. It by-passes the undersize material and fines to prevent choking of the secondary plant crusher, thus greatly increasing plant production.

In the complete line of Cedarapids Portable Primary Plants, the Portable Double Impeller Impact Breaker is outstanding for exceptionally high production of desired cubical shaped aggregate or road rock at low cost.

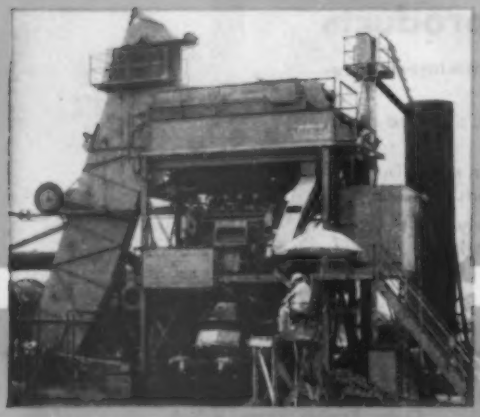


Single Pass Plants

Here's the most practical plant of this type available. The new Cedarapids Single Pass has plenty of screening capacity for producing two sizes of material, and the hopper and feeder located on *the rear end* lets you back right up to the nearest gravel bank or quarry face and start producing profitable tonnages immediately.

Secondary Plants

Cedarapids Secondary Plants are low-cost, portable gravel and rock crushing and screening plants, complete in themselves, which may be used alone or behind a portable primary, depending on conditions, for big-volume production of finer-sized aggregates. Since the finished product size is determined by the crusher in the secondary, four types of crushers . . . Hammermill, Roll, Twin-Jaw or Symons Cone . . . are available.



Bituminous Mixing Plants

MODEL G60, the newest and biggest batch type bituminous mixing plant in the complete Cedarapids line, turns out 3 tons at a batch! With fully automatic controls (optional), capacities range up to 180 tons per hour, or more, of uniformly mixed bituminous concrete. Highly portable.

MODEL CM continuous-flow bituminous mixing plant, the smallest in the Cedarapids line, is the ideal unit for "commercial" type jobs. The twin-shaft Mixing Unit can be used alone for cold mix, or with a Cedarapids Drier and Gradation Control Unit for producing hot mix or high type bituminous concrete to strict specifications.

Printed in U.S.A.

IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U.S.A.

Granite and Slate Studies Completed in North Carolina

The Division of Mineral Resources of the North Carolina Department of Conservation and Development has recently published two major geological reports, *The Commercial Granites of North Carolina* (Bulletin 67) and *A Preliminary Geological Report on Commercial Rock of the Volcanic-Slate Series, North Carolina* (Information Circular 12), both written by Richard J. Councill. Besides considering the distribution of the granites and rocks of the Volcanic-Slate series in the state, the reports also discuss the geology and quarrying practices of the state's numerous crushed stone and building stone operations. Physical and structural properties of the rock types are also discussed; emphasis is placed on potential mineral resource areas.

These publications can be obtained from the North Carolina Department of Conservation and Development at Raleigh.

Armour Institute Reorganizes Minerals Research Department

The ceramics and minerals research department at Armour Research Foundation of Illinois Institute of Technology, Chicago, has been reorganized as a result of its increased scope of activities. Dr. Einer P. Flint, department manager, announced that a new research section has been created and names of three of the four previously-existing sections have been changed.

The newly-organized ore dressing section, concerned with the beneficiation of both non-metallic and metallic ores, is headed by Dr. Kenneth C. Vincent. Albert Litvin is supervisor of the building technology section, known previously as the masonry materials section. J. Scott Griffith is supervisor of the geology and mineralogy section, formerly known as the minerals section. Samuel W. Bradstreet is supervisor of the chemistry of mineral products section, formerly called the inorganic technology section. Dr. James A. Stavrolakis continues as supervisor of the ceramics section.

According to an Idaho Bureau of Mines bulletin recently issued, one of the most promising fluorspar mineralization centers in Idaho is near Challis in Custer County. A previous bulletin had reported another deposit near Meyers Cove in Lemhi County. Copies of either bulletin are available from Dr. J. D. Forrester, director of the bureau at the University of Idaho at Moscow.

YUBA PLACER DREDGE DIGS, TREATS, STACKS 18,000 TONS GRAVEL DAILY...

This placer dredge with 18 cu. ft. buckets digs to 125' below water, averages better than 22 hours running time daily. Intricate treatment equipment on board limits digging to only 18,000 tons of gravel per day. For sand and gravel digging only, an 18 cu. ft. YUBA dredge can produce as much as 40,000 tons daily.

5¢ Per Ton

YUBA gold dredges or other bucket ladder dredges of this type can be converted to dig and screen sand and gravel at operating costs substantially under 5¢ a ton. Equipment for more extensive sizing, scrubbing or other separation processes can be installed to finish products at costs per ton comparable with the low costs on dredges used in the mining industry.

Another big advantage — YUBA dredges float in their own ponds and excavate gravel without lowering surrounding water levels.

Long Operating Life

With YUBA dredges you get both low production costs and long operating life—many YUBA dredges are operating efficiently after 25 years or more of rough service.

Consult YUBA NOW. We will design and build a new dredge to fit your ground; or help you find a used dredge, and move, redesign and rebuild it. Wire, write or call us—no obligation, of course.

Profusely illustrated, 40-page brochure, "YUBA Dredges," yours for the asking.

YUBA DREDGES — PROVED DEPENDABLE THE WORLD OVER

YUBA MANUFACTURING CO.

Room 718, 351 California St., San Francisco 4, California, U. S. A.

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CABLES: YUBAMAN, SAN FRANCISCO SHAWDARBCO, LONDON

63

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

THE February 1 and 15, 1925, issues of PIT AND QUARRY covered a surprisingly wide range of subjects of interest to nonmetallic minerals producers. Special articles included the following: *Workmen's Compensation Insurance and Accident Prevention* by Dwight Ingram; *Methods of Checking Fuel Waste* by Charles Longenecker; *Rock Dusting in Mines; Industrial Traffic* by Joseph H. Donnell; *Crushed Stone Tests* by A. T. Goldbeck; *Babbitts and Babbitting; Aggregates for Concrete* by C. D. Franks of the Portland Cement Association; *Speed Reducers; Industrial Transportation* by R. N. Van Winkle; *State Highway Specifications; More Income Tax Law Changes* by D. J. Hutchinson; *Chain Drives for Cement Mills* by George B. Massey; *Keeping Costs at Lime Plants* by D. J. Hauer; *Mining Codes;* and *Excavating by Hand.*

The editorials gave sound advice to these industries on *Being an Executive, The Personnel Publication, Profits from Better Equipment,* and *Compensation for Better Ideas.* A lengthy article replete with charts and tables hailed the second consecutive $5,000,000,000 building year, an illustration of how our economy has grown, even after allowing for present higher costs. An interesting report on materials prices shows how little these have been increased in 30 years. Washed gravel was being quoted at $2.25 per cu. yd. in cargo shipments alongside dock, and sand was $1.25. Crushed stone was $1.75 and $1.85 f.o.b. wholesale in carload shipments. Cement was $2.15 per bbl. in bulk alongside dock, and common lime was $12 to $13 per ton wholesale at the warehouse in New York.

Operating articles described the hillside limestone ballast plant of the Railroaders' Lime Company near Corydon, Ind.; the Crystalite Reduction Company, which processed in the same plant materials from a dolomite quarry and a granite quarry near Randville in the Upper Peninsula of Michigan; the limestone operation of the Annville Stone Company, Palmyra, Pa.; the Lenawee Sand & Gravel Company, Tecumseh, Mich.; the Glens Falls Portland Cement Company, Glens Falls, N.Y.; the Valley View Sand & Gravel Company, Troy N.Y.; the Rayburn Sand & Gravel Company, Moscow, Idaho; and the Triangle Sand Company, Inc., Mamaroneck, L.I., N.Y.

In the news were the incorporations of the Calaveras Cement Company for $14,000,000 and the Kansas Portland Cement Company at Bonner Springs, Kans. It was also reported that the Utah-Idaho Cement Company had taken over the plant and business of the Ogden Portland Cement Company at Ogden, Utah. The Brazilian Portland Cement Company was reported to be building a 1,000-bbl.-per-day cement plant near Sao Paulo, Brazil, the first in that country.

Personalities in the news were: R. B. Randall, new western sales manager for the G. H. Williams Company; W. H. Agens, new southwestern district manager for the Traylor Engineering & Mfg. Company in Los Angeles; George W. Walters, new northwestern sales manager for Traylor in Seattle; and the resignation of A. C. Schultz as chief engineer of the Kelley Island Lime & Transport Company. The following obituaries were reported: Glenn G. Howe, for many years senior vice-president of the Link-Belt Company; John B. Lober, president of the Vulcanite Portland Cement Company; and Edwin J. Armstrong, chief engineer of the Erie Steam Shovel Company.

Restarick and Moyle Named To New Posts by Marquette

Henry Louis Restarick has been named superintendent of the Marquette Cement Manufacturing Company's plant at Superior, Ohio, suceeding William Moyle, acting superintendent, who becomes project supervisor for the Operations Department of the company. The appointments were announced by Frank Moyle, Marquette vice-president and director of operations.

Mr. Restarick comes to Marquette from the Silica, Ohio, plant of Medusa Portland Cement Company, where he has been assistant superintendent. Prior to that he had been superintendent for the Hawaiian Gas Products Company, Ltd., and for the Hawaiian Cement Company, Ltd., both on the island of Oahu, T. H.

Born in Honolulu, Mr. Restarick received his schooling there, at the University of Washington and at the United States Naval Academy. Later he returned to the University of Hawaii, where he majored in chemical engineering.

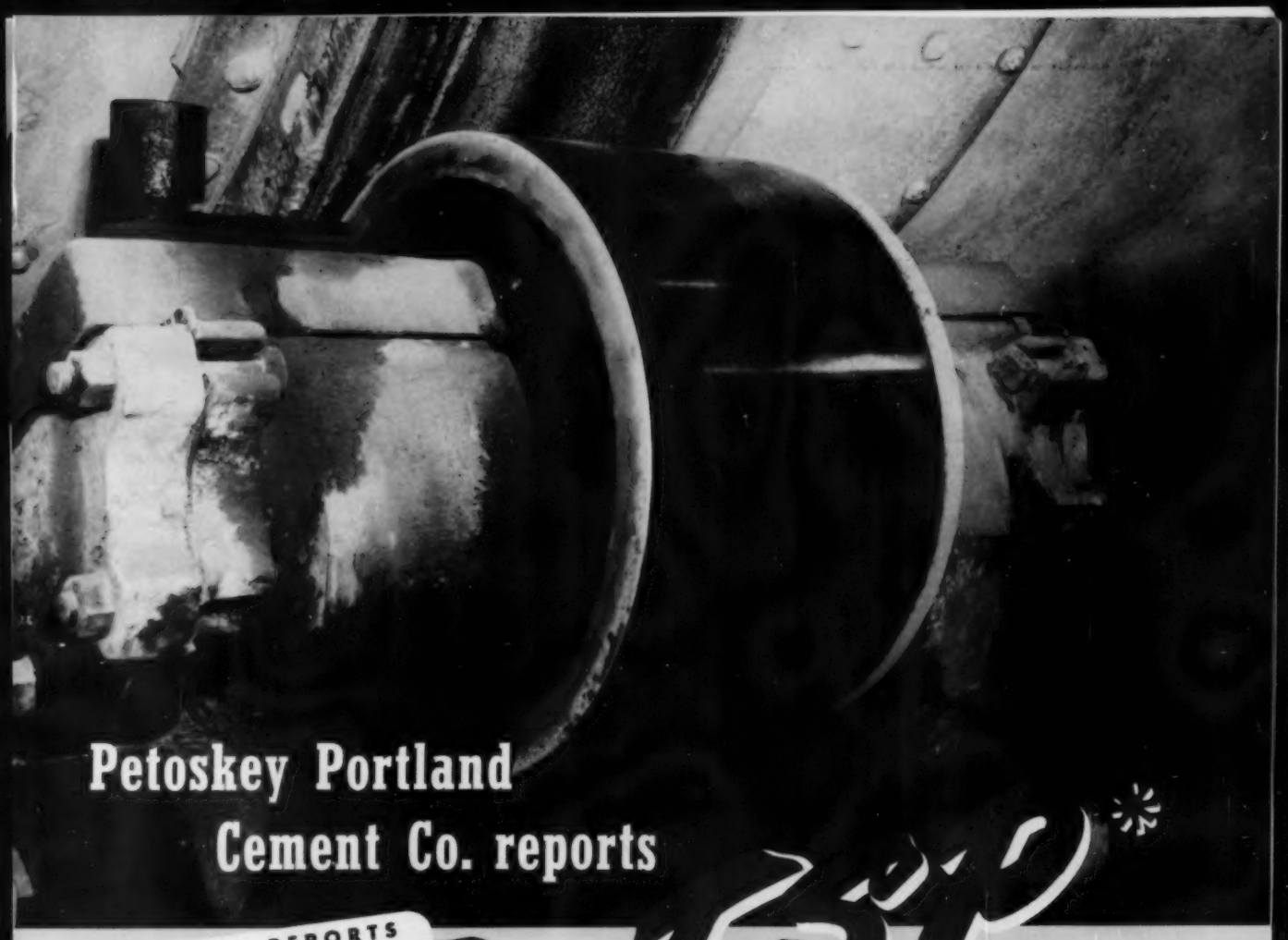
H. L. Restarick

William Moyle, a Marquette veteran, will remain at Superior for the present to open up and develop the company's new quarry there. He will be available for special assignment within the company thereafter.

Sales of asbestos in 1953 in the United States advanced 1 percent beyond the all-time high of 1952 according to reports by producers to the U.S. Bureau of Mines. During 1953 54,456 short tons of asbestos were produced at a value of $4,857,359. Domestic sources supplied only 7 percent of United States requirements.

Dyckerhoff Portland Zement Werke, Wiesbaden, Germany, produced 12,600,000 of the 15,500,000 tons of cement output of West Germany in 1953. The entire German cement production has been increasing at an annual rate of 23 percent, and Dyckerhoff's production rose by 17 percent.

Renovation work has been started at the Ash Grove Lime and Portland Cement Company's plant at Chanute, Kans. Cost of the modernization will be approximately $2,000,000. A new kiln and additional grinding facilities will be installed. Although output will not be increased, the changes will reportedly eliminate costly shut-downs for repairs.



Petoskey Portland Cement Co. reports TSP trunnions outlast them all!

INDUSTRY REPORTS

Excerpt from letter, Petoskey Portland Cement Co.,

"...on our #1 kiln we ran one (TSP Trunnion) 7 years and one 8 years before replacing bearing...on # 2 kiln we ran one 12 years and one 11 years...on #3 kiln, 6 years, 7 years and 8 years...on #4 kiln, 10 years and 8 years...also good results with both TSP rolls and shafts..."

Petoskey Portland began installing "Tool Steel Process" Trunnions in 1940, completed installation on all 4 kilns by 1943. None has worn out to date. Eighteen TSP Trunnions are now in use. In addition to their long service life, they have been instrumental in smoothing the surface of the large tires.

TSP Shafts installed with these TSP Trunnions are showing the same phenomenal results. Prior to the installation of TSP Shafts, bearings had to be renewed every 2 years.

Next time you need replacement parts, specify "Tool Steel Process" parts. Savings in material, man hours and downtime will prove to you TSP superiority, as it has to hundreds of companies.

* TOOL STEEL PROCESS PRODUCTS

...the products that carry an absolutely positive GUARANTEE to give a longer life in the same service than any other product.

THE TOOL STEEL GEAR AND PINION CO.

CINCINNATI 16, OHIO, U. S. A.

AD 53

THE STANDARD OF QUALITY SINCE 1909 FOR GEARS • PINIONS • ROLLS • WHEELS AND OTHER HARDENED PRODUCTS

Pennsylvania Stone Producers Convene at Harrisburg

THE Agricultural Limestone Division of the Pennsylvania Stone Producers Association held its annual business meeting and open meeting at the Hotel Penn-Harris, Harrisburg, Pa., on December 21, 1954. There were 36 members of the industry present at the morning business meeting, which was presided over by Leonard Fry (Fry Coal & Stone Co., Inc.), chairman of the aglime division of the association.

Chairman Fry, in presenting his report on the general activities of the division throughout the year, reviewed the meetings which the board of directors had held with the association's Agricultural Soil Conservation Committee. Regulations governing soil conservation practices, mainly the liming materials program, were discussed at these sessions. Other promotional activities of the year were described, including the vocational-agricultural teachers' conference and the division's annual scholarship award at the state university.

Dean Fyock, division representative at the conference, reported that meeting of over 300 teachers, held at Eagles Mere, Pa., describing display items and activities of the four-day session. It was decided that this conference should be repeated in 1955. Robert Garman, president of the P.S.P.A., who with Mr. Fyock attended the presentations of the scholarship awards, gave a description of that event. Plans were discussed as to enlarging student participation in this program of awards in the future.

General conditions of the agricultural limestone industry in Pennsylvania were reported by secretary H. H. Wagner, who pointed out that sales of aglime material in the state were 30 percent lower in 1954 than 1953, adding that this had happened for two years in a row. He predicted that this declining trend would continue as long as the cross-compliance regulations controlling farmer participation exist.

The following officers were nominated and elected for the ensuing year: P. Edward George, sales manager, Thomasville Stone and Lime Co., Thomasville, Pa. (chairman); D. K. Shroyer, sales manager, H. E. Millard Lime and Stone Co., Annville, Pa. (vice-chairman); H. M. Binkley, president, Binkley Bros., Inc., East Petersburg, Pa. (treasurer); H. H. Wagner, general manager, P.S.P.A., Harrisburg, Pa. (secretary).

Those chosen to serve as directors are as follows:

Eastern section—Ivan M. Martin, president, Ivan M. Martin, Inc., Blue Ball, Pa., and Fred Roberts, Evans-Roberts, Inc., Norristown, Pa.

Central section—W. O. Faylor, president, Faylor Lime and Stone Co., Winfield, Pa., and C. E. Peterson, Pine Creek Lime and Stone Co., Jersey Shore, Pa.

Western section—Robert Hammett, The Carbon Limestone Co., Lowellville, Ohio, and Herschel W. Lamb, president, Grove City Limestone Co., Branchton, Pa.

Ralph Culver, state chairman of the ASC committee, and Mr. Wagner were co-chairmen of the afternoon annual open meeting. Mr. George, the newly elected chairman, asked for an expression of appreciation for the work done during the last year by Mr. Fry. Mr. Culver gave a comparative analyzation of the total acreage of available farmland in Pennsylvania, New York, and Ohio, and also submitted figures of the total lime used by these states from 1936 to the present, including 3,800,000 tons in 1952, 2,800,000 tons in 1953, and 2,250,000 tons in 1954.

Other speakers covered various phases of conservation practices. Anthony Di Santo, program specialist for the ASC committee, explained the 1954 program in the state. He stated that 86,000 farmers were enrolled in 1953 and 56,000 in 1954. Mark Shuman, administrative director for the state ASC committee, estimated the amounts available and expended in 1954-1955 for permanent conservation. Frank G. Bauer, agronomist for the Agricultural Extention Service, traced the history of extension work and soil testing for lime requirements, giving significant figures for the period from 1933 to the present. Dr. R. P. Pennington, assistant professor of soil technology, Pennsylvania State University, discussed experimental work on liming done by the university, stating that sub-soiling is the only way to increase productive acreage and at the same time conserve water. Norman K. Hoover, department of education at Pennsylvania State University, explained the function of the Land Use and Management Scorecard made available by the university and various producers to vocational-agricultural teachers and students.

In a question-and-answer period which followed Mr. George was asked about plans for encouraging greater farmer participation in 1955. He replied that he thought the state ASC committee had done very well and that no change in the present plans for such promotion were contemplated. In this stand Mr. Shroyer, vice-chairman, disagreed, pointing out that the program, in his opinion, was not being brought to the small farmer with marginal lands needing conservation most. After further discussion it was suggested that the aglime division prepare a formal statement on the subject to be forwarded to interested officials.

Washington News Letter

(*Continued from page* 12.)

who can lure the most voters by providing special benefits out of the public purse. At least, since the beginning of the Roosevelt Administration, the Democrats have found this to be a most reliable device for winning elections.

There is every sign that the Republicans, particularly the liberal wing of the party, are looking with considerable favor on employing the same device. This is evidenced by the reaction of the Democrats to the President's State of the Union message. They complained that the President had promised so much to so many different people, that there was nothing left for them to promise without looking downright silly.

If these tendencies develop into trends, the horrible thought that we have to deal again with an OPA may turn into a nightmarish reality. As a matter of fact, the Administration is asking Congress to extend standby legislation for price and wage controls.

Zonolite Moves Central Office From Little Rock to St. Louis

Transfer of the Zonolite Company's central division headquarters from Little Rock, Ark., to St. Louis, Mo., following purchase of two licensee companies was announced on January 14.

The company recently acquired the facilities and sales territories of the Zonolite Insulation Company, St. Louis, and Vermiculite Products, Inc., Kansas City, Mo. Most of the personnel of the two former licensee companies will continue under the new ownership, and C. R. Babb remains as central district manager.

Check the looks!

Ice, Sleet, Snow—SLOW!

Try the comfort!

Then, to get the most for your money

LOOK UNDER THE HOOD!

A revolution in truck power is taking place . . . sparked by the Ford Short-Stroke V-8!

When a new type of engine prolongs piston ring life as much as 53% . . . gives gas savings of up to 1 gallon in 7 . . . cuts engine friction as much as 33% to liberate more *usable hauling power*, you know it's bound to go over big with economy-minded truck users.

A new MONEY MAKER for sand and gravel delivery—the '55 Ford T-800 Tandem Axle BIG JOB! Powered by the mighty Short-Stroke 170-h.p. *Cargo King* V-8, it is rated for 40,000 lbs. GVW, 60,000 lbs. GCW. *Master-Guide* Power Steering is standard equipment!

Small wonder, then, that the truck industry is now investing millions of dollars *under the hood* . . . in a revolutionary switch to Short-Stroke V-8's.

But Ford, pioneer in V-8 truck power, made the switch over three years ago. And right *now*, you'll find a *proven*, modern Short-Stroke engine under the hood of every Ford Truck. Only Ford offers a full line of Short-Stroke engines . . . four V-8's and a Six.

Make sure your next truck is a modern Money Maker. Look *under the hood!* Look for a modern Short-Stroke engine with a "stroke" as short as, or shorter than its "bore." And remember, you get the full advantages of Short-Stroke design *today* in any Ford Truck you choose.

Call your Ford Dealer or write: Ford Division, Ford Motor Co., Dept. T-12, Box 658, Dearborn, Mich.

FORD Triple Economy TRUCKS

THE MONEY MAKERS FOR '55

Missouri Limestone Producers Hold Tenth Annual Convention

THE 10th Annual Convention of the Missouri Limestone Producers Association was held at Columbia, Mo., on December 15 and 16, 1954, with an attendance of about 200 members, their associates, and friends. It was one of the largest conventions held by the Missouri group in its history.

The meeting was held at Columbia in close proximity to the Missouri College of Agriculture and to the state headquarters of the Missouri Agricultural Conservation and Stabilization committee. Emphasis was placed upon the agronomic values of agricultural limestone. Talks and panel discussions were pointed toward lines of soil fertility and plant nutrition.

Dr. W. A. Albrecht, chairman, Department of Soils, University of Missouri, was an important contributor to the program. He re-affirmed his stand, which has been made known from coast to coast in America, that calcium is the most important single mineral nutrient for optimum plant growth and that all other mineral nutrients depend upon adequate calcium for maximum effectiveness. Dr. Albrecht stated in plain words his belief that soil testing is a fine thing for any farm program, but that states should be given the privilege of developing their own testing programs. He said that no man or group of men could possibly devise a nationwide regulation controlling soil testing "like a blanket over the country". The variables between states will result in resorting to state rule in this current soil testing program, according to Dr. Albrecht.

The Hon. George A. Christopher, Missouri congressman, 4th district, discussed in detail the folly of the 1955 ASC requirement that soil conservation practice participation by farmers be limited to those who are within their acreage allotments and marketing quotas. Mr. Christopher declared that all farmers should have the privilege of co-operating in a national soil-building program irrespective of race, color, creed, religion, politics, or crop controls. He promised his listeners that he would go to work on this problem immediately upon his return to Washington in January.

Others on the program included Murray Colbert, Chairman, Missouri ASC Committee; John C. Kendrick, program specialist, Missouri ASC Committee; John N. Falloon, extension soils specialist; George E. Smith, professor of soils; Robert M. Koch, National Agricultural Limestone Institute, Inc., Washington, D.C.; Arly Brooks, Kahoka; and R. W. Hunt, Neosho.

A major event of the meeting was the annual banquet, at which about 50 university faculty members, ASC officials, and their wives were special guests. A St. Nick's bag was given to each guest. They contained members' advertising materials such as pencils, matches, paper weights, playing cards, almanacs, key cases, etc.

Officers named to serve in 1955 are as follows: president, Albert Richardson, Forest City; vice-president, O. L. Taetz, Gray Summit; and secretary-treasurer, Roy E. Mayes, Carthage.

Members elected to the board of directors are the following: M. M. Green, Carrollton; Joe Howard, Ozark; Arly Brooks, Kahoka; Earl Thomas, Sedalia; Ben Lustig, Independence; and H. E. McClain, Wellsville. Paul N. Doll, Jefferson City, was retained as association manager for another term.

Retiring board members who have served the group for three years include the following: Arthur R. Alvis, Butler; J. J. Griesemer, Billings; and H. C. Krause, St. Louis. They were given a standing vote of appreciation for their outstanding service to the association.

L. C. Carpenter, Missouri's commissioner of agriculture, and Ben P. Donnell, Valley Dolomite Corporation, Bonne Terre.

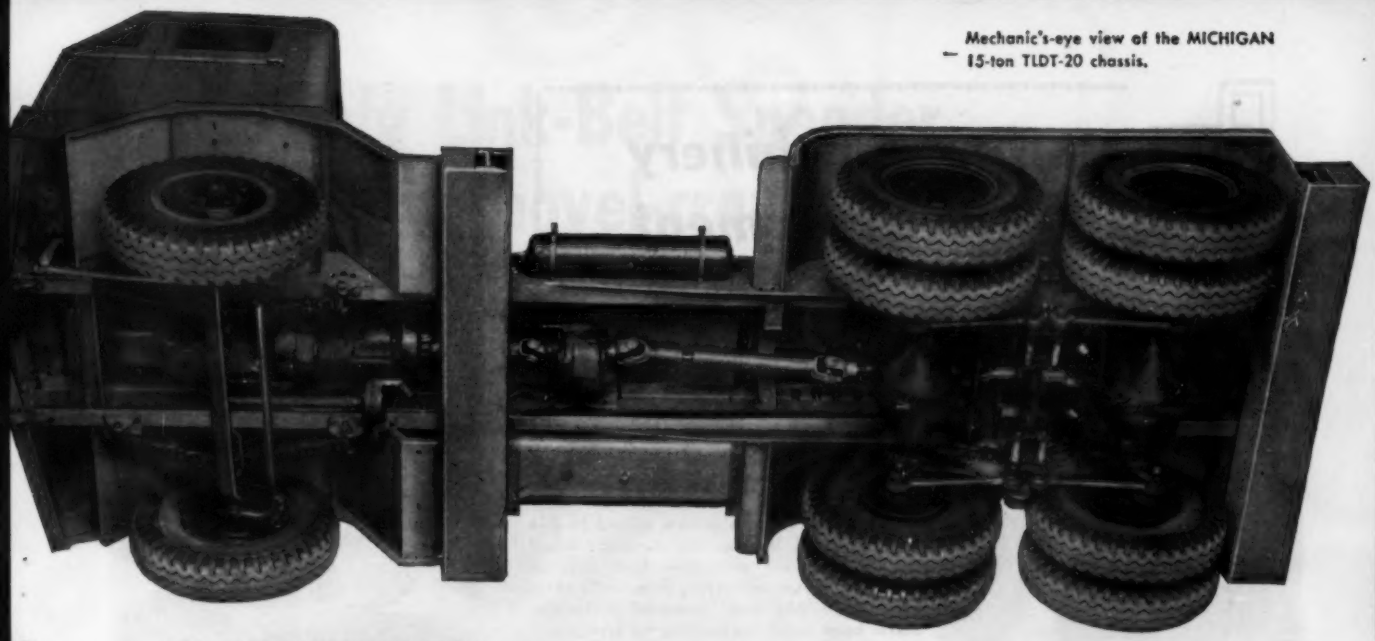
Calaveras Cement Company has released a sound and color motion picture film on the manufacture of cement entitled *Grey Gold From the Mother Lode*. This film is available free of charge to trade associations upon application to Mel J. London, vice-president, Calaveras Cement Co., 315 Montgomery St., San Francisco 4, Calif.

The Fisher Lime and Cement Company and the Ready-Mix Cement Company, both of Memphis, Tenn., received Governor Frank Clement's Safety Award recently for having operated their trucks for three years without an accident.

K. K. Kinsey, Concrete Materials and Construction Company, Cedar Rapids, Iowa; Dr. Charles Gehrke, chairman, Department of Agricultural Chemistry, University of Missouri; and Sam Kraus, St. Louis.

Robert M. Koch, N.A.L.I. executive secretary, Washington, D.C.; Arthur R. Alvis, Missouri Limestone Producers Association; and Dr. W. A. Albrecht, chairman, Department of Soils, University of Missouri.

Ray Howerton, Bowling Green, Mo.; Julian Knopke, Contractors Supply Company, Kansas City; and Kenneth Kilkenny, West Plains, Mo.

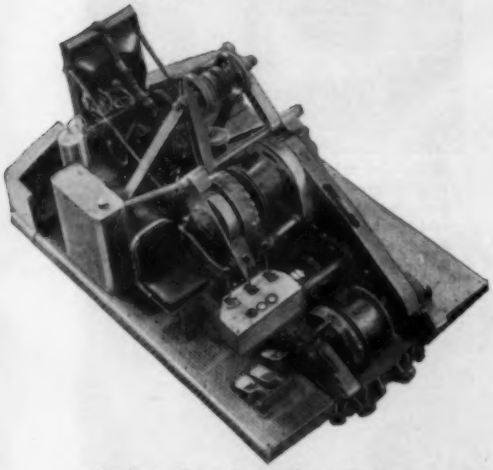


Mechanic's-eye view of the MICHIGAN 15-ton TLDT-20 chassis.

NEWS!...More Quality Features

are Standard Equipment on MICHIGAN

½ yard models than on any comparable machine



The basic ½-yard turntable mechanism —maximum service accessibility.

Front-view of four of the MICHIGAN's six adjustable hook rollers.

In your point-for-point comparison (a smart buying tactic!) take special note of these great value features—"extras" on many other makes, standard on MICHIGAN ½ yard Truck Excavator-Cranes.

16-Ton Axles — tremendous strength! No wonder your MICHIGAN stands years of punishment.

404 Cubic-inch Truck Engine—huge power! Compare it to other ½-yard machines.

Cast Steel Turntable—machinery deck with boom hinge-pin bracket and hook roller brackets in a single rugged steel casting.

6 Hook Rollers—on most others you get only 3 or 4. MICHIGAN rollers are ball-bearing mounted for friction-free swings and tapered for easy adjustment.

Air Powered Clutches—famous for smooth, positive action; faster swing; minimum fatigue; and easy, quick service.

Ball Bearings—on all shafts and drums.

Power Up and Power Down — on the front drum for precision crane work.

Add these up and get this sure-thing, profitable answer: You Move More With A MICHIGAN. For more information, contact your local MICHIGAN distributor. Or send us the coupon.

MICHIGAN Tractor Shovels are available under the Clark Leasing Plan—we'll be glad to send you details.

CLARK EQUIPMENT

CLARK EQUIPMENT COMPANY 26
Construction Machinery Division
450 Second St., Benton Harbor, Michigan

☐ Please send MICHIGAN ½-yard Bulletin ☐ Send Lease Plan data sheet

Name_____ Title_____

Firm_____

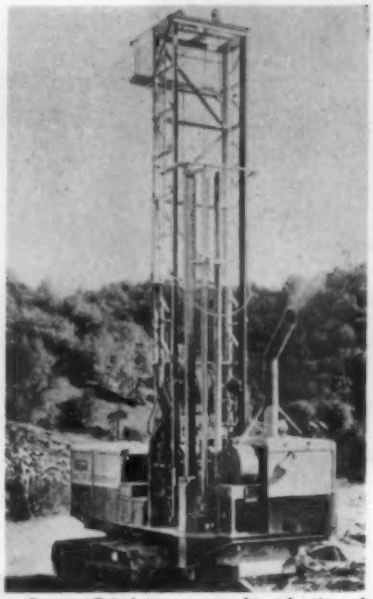
Address_____

City_____ County_____ State_____

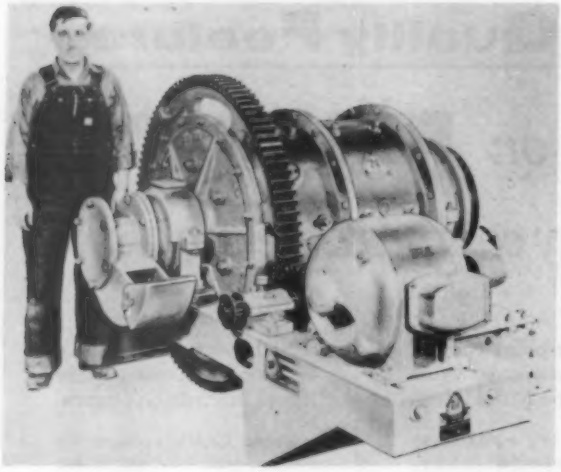
New Machinery and Equipment

(For more information, use card on p. 101)

● Pictured is a Minneapolis-Moline C-175 Util industrial Wheeler equipped with a Reese 1½-cu. yd. bucket. These M-M Util Wheelers feature a superior front-end design which results in easier handling and greater load capacity. A special heavy industrial Ross steering gear used on the Util has precision roller bearings and the worm is cam ground to give 20% increased leverage for turning. Wheel centers are made removable from hubs to provide low cost conversion from 14.00-24 to 15-26 or 18.00-26 tires. Improved double-disc brakes boast easier accessibility for servicing. ← (51)



● Bucyrus-Erie has announced production of a rotary blast hole drill for putting down medium-diameter holes from 6¾- to 9-in. The new Model 40-R crawler-mounted drill incorporates such outstanding design features as hydraulically powered down pressure on the bit for maximum controlled penetration, and continuous drilling for 27¾ ft. ↑ (52)

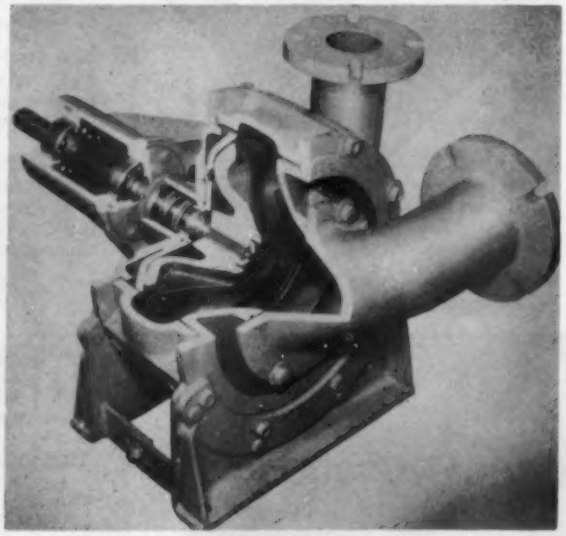


● Pilot plant grinding has been simplified with the new steel head ball mill of Denver Equip. Co. The shell sections of this steel-base mounted mill can be added or removed as required to more accurately duplicate mill problems. Motor and drive are part of the packaged unit. Feed is by scoop but feed plate may be removed for direct feed by launder, chute, or pipe if desired. The same base is used whether the mill consists of 1 or 2 shell sections. Many other Denver ball mills for pilot plant and commercial grinding operations are available. ← (53)

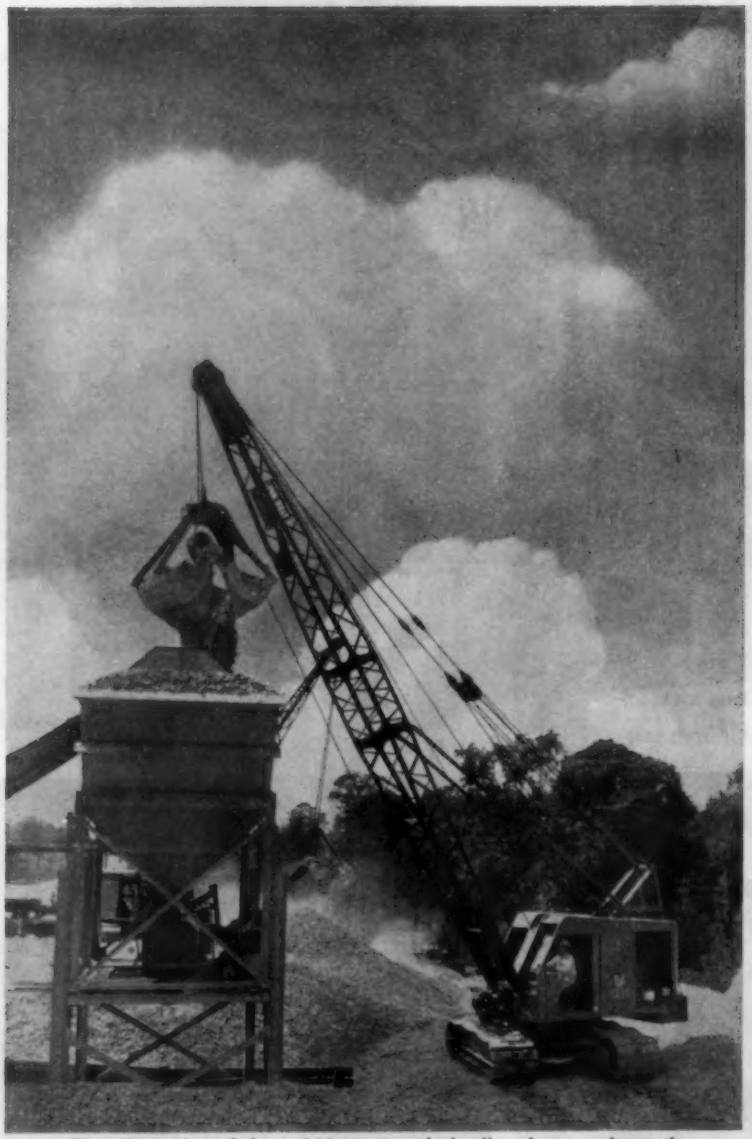
● A new rotary compressor added to the Worthington "Blue Brute" line is said to have several exclusive new design principles and features formerly unavailable. A hydraulically operated clutch lets the engine warm up before the compressor is cut in. ↑ (54)

● Foote Bros. Gear and Machine Corp. has cataloged a standard line of worm gear sets for the first time. Until this time they had made gear sets only for their own reducer units. The gears are available in standard ratios from 4⅛ to 71. They will have applications in cranes and hoists, machine tools, furnace drives and metal mills, and other equipment with shock load or uniform load characteristics. ↑ (55)

● This cutaway view of the Wemco Torque-Flow solids pump illustrates its unique design. Conventional centrifugal pumps require material to follow relatively narrow passages from center feed to periphery of the rotating impeller, which results in jamming, clogging, breaking, and binding. The Wemco Torque-Flow pump leaves the pump housing completely open. Rotating fluid (induced by impeller) forms the carrying medium, which leaves nothing to clog, break, or bind. The pump handles coarse abrasive, or soft materials with equal facility. A special inlet to prerotate feed and a functional impeller profile permit free flow-path and prevent losses from abrupt directional changes in flow. Angular adjustment of inlet, piping is by simple rotation of front case housing. → (56)

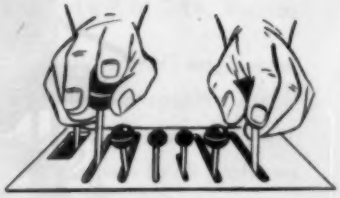


Only Link-Belt Speeder shovel-cranes have full power hydraulic control!



Throttling action of the variable pressure hydraulic valves permits gentle control of the load . . . accurate spotting over trucks, bins or similar targets.

--no lag, no jerk, no strain--in Speed-o-Matic



. . . on every model

EXCLUSIVE! Yes, *only* Link-Belt Speeder gives you smooth-operating, Speed-o-Matic power hydraulic control! It's another BIG reason why owners get more production . . . yards-ahead output every day. Here's the reason:

- REDUCED OPERATOR FATIGUE—fingers, not muscles, put full power to work.
- SMOOTHER CYCLES—instantaneous response, no lag or delayed action.
- MORE ACCURATE CONTROL — pinpoint spotting with complete safety.
- FEWER CLUTCH ADJUSTMENTS—clutch piston is self-compensating for normal lining wear and heat expansion.
- 150 LESS WEARING PARTS—slashes maintenance costs.

Make sure the shovel-crane you buy has money-making Speed-o-Matic control — now available in rigs from ½ to 3-yard, 6 to 60-ton sizes. Contact your Link-Belt Speeder distributor now. LINK-BELT SPEEDER CORPORATION, Cedar Rapids, Iowa.

Link-Belt Speeder gives you all these advantages, too!

Greatest net horsepower — with the extra "live" weight and strength to handle it.

Large, roomy cab — provides excellent visibility, greater comfort for operator.

Longer lining life — with superior friction from alloy cast-iron clutch shells.

Splined shafting and anti-friction bearings throughout upper main machinery.

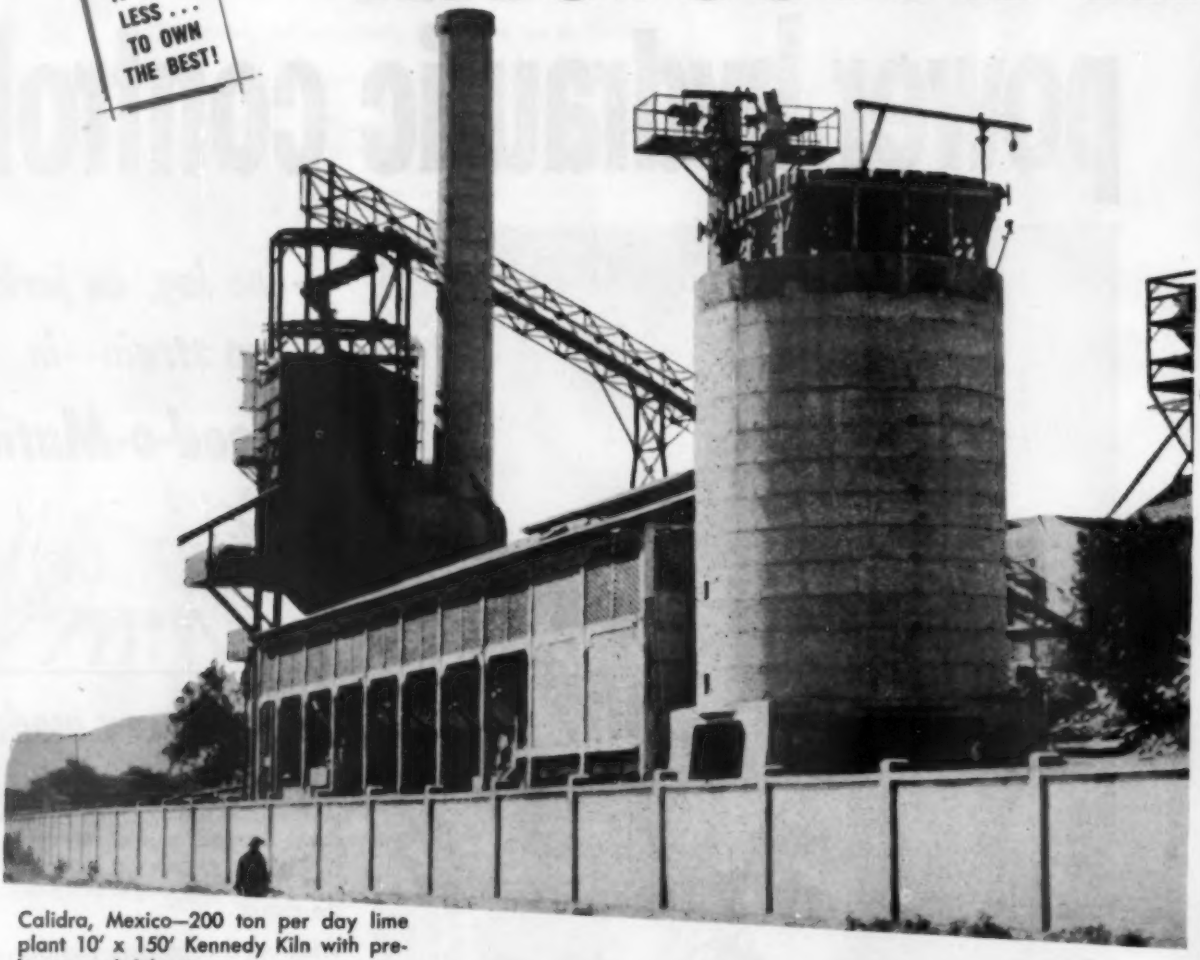
LINK-BELT SPEEDER

13,754

Builders of a complete line of crawler and rubber-tired shovel-cranes

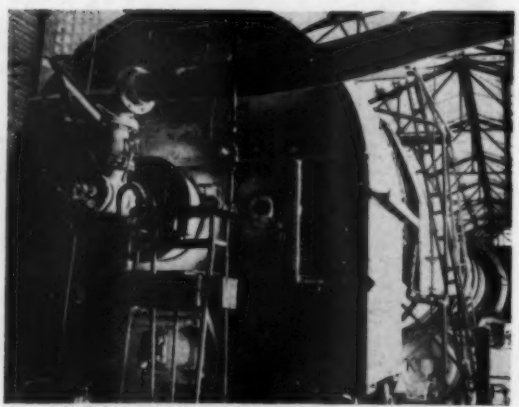
Interested in

IT COSTS LESS . . . TO OWN THE BEST!



Calidra, Mexico—200 ton per day lime plant 10′ x 150′ Kennedy Kiln with pre-heater and deheater

Calidra, Mexico—200 ton per day lime plant 10′ x 150′ Kennedy Kiln with oil pre-heating coils looking towards firing end



Calidra, Mexico—200 ton per day lime plant 10′ x 150′ Kennedy Kiln with oil burner

TWO PARK AVENUE, NEW YORK 16, N. Y. • FACTORY, DANVILLE, PA.

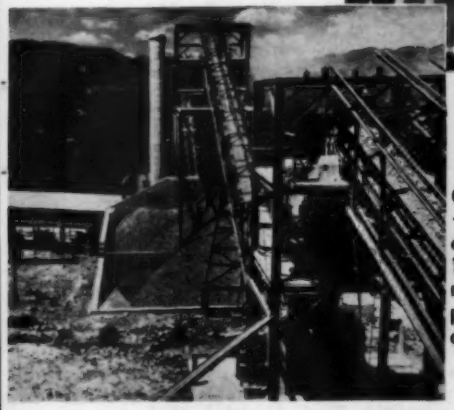
Lime Production?

SEE HOW *KENNEDY* SERVES THE LIME INDUSTRY THROUGH ENGINEERING THE RIGHT MACHINERY & EQUIPMENT

High quality, uniform lime at the rate of 200 tons per day is the record of this typical KVS *engineered* installation for CALIDRA, Mexico.

Every piece of equipment was KVS engineered and designed to perform a specific task—economically, systematically, consistently, with due consideration being given to all problems of location, temperature and terrain. The whole operation is delivering high grade lime in excess of rated capacities . . . a characteristic of *all* KVS installations.

KVS engineers are available for consultation anywhere. Let us help you solve your lime, cement and crushing problems. Send for bulletins describing KVS machinery and equipment.

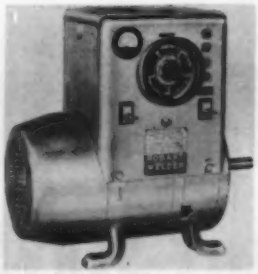


Calidra, Mexico —200 ton per day lime plant 10' x 150' Kennedy Kiln with preheater and deheater

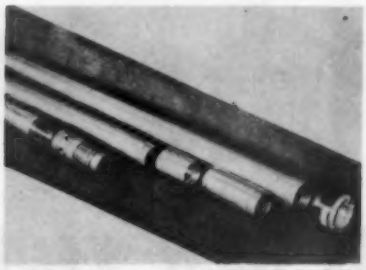
KENNEDY-VAN SAUN

MANUFACTURING & ENGINEERING CORPORATION

● Featuring an 180-degree boom swing, the Pettibone Mulliken Speed Swing Loader permits discharge of load left or right, in addition to front. To accomplish this, the loader does not have to be moved out of the loading position line. (57)



● Hobart Bros. Co. is now offering the generator (less engine) of their famous combination welder and power plant. This generator has an ingenious selector panel that makes it either an arc welder or a power plant. (58)

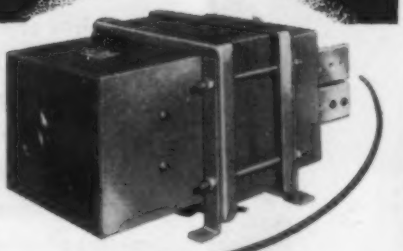


● Developed to meet the demand of the newer, more powerful air drilling rigs for rugged, heavy-duty equipment, the new Beaver core barrel has an exceptionally heavy outer barrel that keeps maintenance costs down and promotes easy core removal on tough drilling jobs with high hp. rigs. (59)

LET THE RECORDS SPEAK!

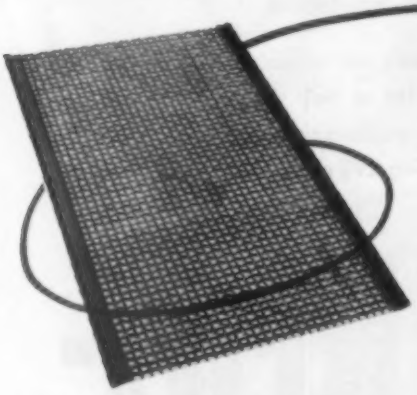
HANCO SCREEN HEATERS

ELIMINATE *Costly* SCREEN BLINDNESS



FASTER, MORE ACCURATE SIZING

HANCO electric heaters are engineered to meet top capacity requirements for heating **all** metallic screen cloth. Mechanical abuse such as "beating" or brushing can be **eliminated completely** when you install a HANCO electric heater. Treat your screens the modern way – get HANCO.



Available in five different assemblies. HANCO engineers have designed and constructed electrical screen heaters to fit YOUR make of screen. Note: Reduction in openings can be effected to meet ever changing specifications.

LOOK AT THESE FEATURES

Faster screening—faster processing means fewer "returns".

Elimination of mechanical abuse to keep screens open.

Longer screen life — no manual cleaning increases screen life up to 800%.

Fewer shut downs for replacement of worn screens.

HANCO quick change assemblies assure easy cloth changes.

Low maintenance cost. HANCO heaters are designed for heavy-duty service.

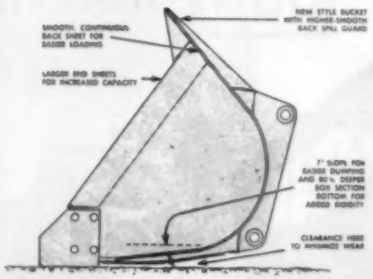
SEND FOR OUR COMPLETE BULLETIN

Hanco

F. R. HANNON & SONS

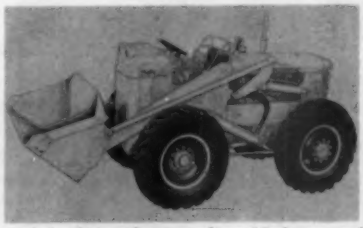
1605 Waynesburg Rd. S.E., Canton 7, Ohio

PIONEERS IN ELECTRIC SCREEN HEATING – FIRST IN THE FIELD OF LOW VOLTAGE AND HIGH AMPERAGE SCREEN HEATING


NEW STYLE BUCKET WITH HIGHER SMOOTH BACK SPILL GUARD
SMOOTH, CONTINUOUS BACK SHEET FOR EASIER LOADING
LARGER END SHEETS FOR INCREASED CAPACITY
7° SLOPE FOR EASIER DUMPING AND 80% DEEPER BOX SECTION BOTTOM FOR ADDED RIGIDITY
CLEARANCE HOLE TO MINIMIZE WEAR

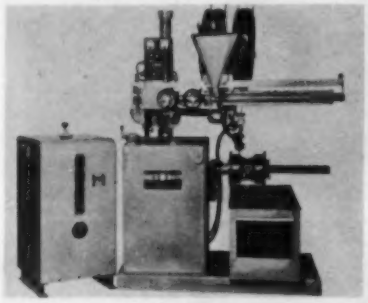
● Allis-Chalmers announces a design change in the standard bucket for its HD-5-G tractor which increases rated capacity to 1¼ cu. yd. from the former 1 cu. yd. The new design also reduces spillage by bringing the bucket's back sheet further forward and extending the spill guard. New curvature results in easier loading. (60)

● Heil rock bodies are used in this tough mining application in Venezuela which calls for hauling up and down steep grades. Five giant diesel and electric shovels ranging in capacity from 2½- to 8-cu. yd. load more than 16 20-cu. yd. Heil heavy-duty rock bodies mounted on Mack LRSW chassis. (61)

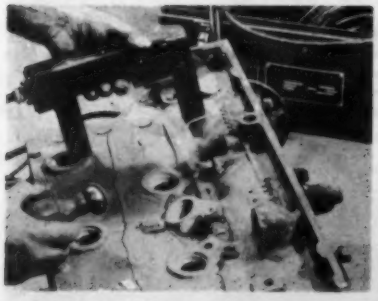


● A bucket with as much as 25 degrees of tip-back at ground level is announced by Tractomotive Corp. for its TL-12 Tracto-Loader. After getting into the pile, the operator can scoop or jockey a load into the bucket by operating the tip-back control lever. During the bucket raising cycle, the amount of tip-back is automatically increased, improving the bucket's ability to retain heaped loads. (62)

● A cross conveyor for J. D. Adams TraveLoaders permits the loading of trucks on either side with equal speed and ease. The conveyor is shifted from side to side by a hydraulic control in the cab. In stockpile loading no time is wasted waiting for trucks to get into position. Deflectors (optional) permit more balanced loading into 6-yd. and smaller trucks. Shiftability to any point, back and forth, permits balancing truck loads sidewise. ▲ (65)

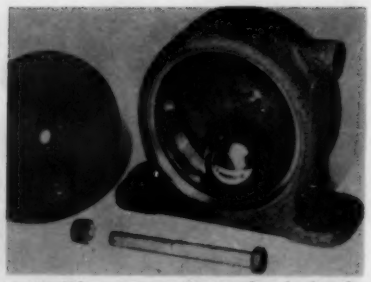


● Faster efficient rebuilding of new and worn parts, automatically, is the job performed by the new Mir-O-Col K-2M automatic rebuilding machine. Cylindrical pieces up to 40 in. in diameter can be locked onto the rotating shaft, or the entire boom can be swung around to the side for rebuilding on a stationary or rotating table. The work shaft, which can be tilted a full 90 degrees for rebuilding flanged surfaces, is operated electrically. ▲ (66)



● Cracks in this automotive engine block are quickly revealed with the highly portable Magnaflux. The operator controls the Yoke with one hand, both power control and positioning, and with the other he dusts on the Magnaflux powder. The self-contained Y-5 magnetic Yoke Kit, in a metal carrying case, weighs under 30 lbs. complete. Magnetic powder, powder bulbs, instruments, and a 100-ft. cord are included. ▲ (67)

● This new Athey HiLoader can be converted from a stockpile-windrow loader to a track cleaner in less than 10 minutes. A new moldboard, just announced by Athey, allows for the insertion of 2 tunnel hoods. ▲ (64)



● AiroViber rotary vibrator (made by the Viber Co.) has only one moving part. A steel ball, the moving part, is blown by an air jet at high speed around a steel track. The resulting centrifugal force is transmitted to the housing to be vibrated. ▲ (63)

READ WHAT THIS DRILLER THINKS OF

SPANG MOLLOY DRILLING BITS

for faster, lower-cost penetration in extra hard or irregular formations

May 6, 1954

Spang & Co.
P. O. Box 571
Butler, Pa.

Attention: Sales Manager

Gentlemen:

Last summer we purchased a set of your 8" Molloy Bits.

We have used these bits on a number of wells in the San Andres lime which is a very hard formation and a good formation to test the quality of steel in bits. Our experience with the Molloy Bits has been quite satisfactory and so far we have not jumped a pin off of these bits. With other bits we ordinarily jump one or more pins on each well we drill.

These bits stand up for a longer period of time and consequently do not have to be dressed as often. They have presented no problems in dressing or tempering. We use natural gas or butane in our forges.

We are well pleased with the bits and it is our plan to replace our other bits as they wear out with the Molloy Bits.

Yours very truly,
Name on request

For complete information on MOLLOY BITS and FREE CATALOG of other SPANG CABLE TOOLS, consult your nearest SPANG DEALER or write direct to:

SPANG & COMPANY

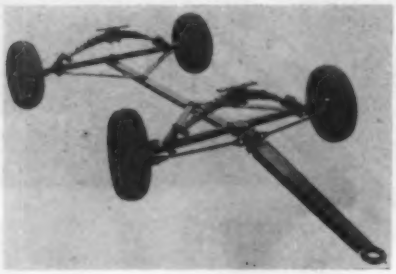
DEPT. M-3 • BUTLER, PENNSYLVANIA

For over 60 years Manufacturers of Spang Weldless Jars and a Complete Line of Cable System Drilling and Fishing Tools for Oil and Gas Wells, Water Wells, Prospect Drilling and Shot Blast Holes.

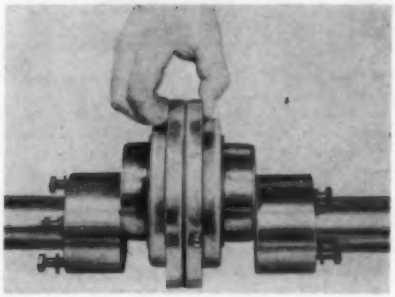
● The Eimco Corp. announces that its 105 tractor is now available for bulldozer, winch, or other attachments. It is built to standard SAE mounting dimensions so that any attachment made with SAE mounting dimensions will fit. Some of the machine's unique design features include: Unidrive transmission which provides for gear shifting under full power in motion, and instant reversals, while eliminating the need for steering with the clutches; and clutches that never need adjustment, with complete elimination of the master clutch. Independent track control through dual fluid drives allows tracks to run in opposite directions simultaneously. ↟ (68)

● Barber-Greene has announced the development of the first bituminous batch plant ever designed from its original conception, for automatic operation. The plant offers maximum tonnage capacity. All sizes of aggregate, including the mineral filler, are weighed simultaneously. Four aggregate measuring bins and separate mineral filler bin are all filled simultaneously from an equal number of supply bins when the plant is running on automatic operation. ↟ (70)

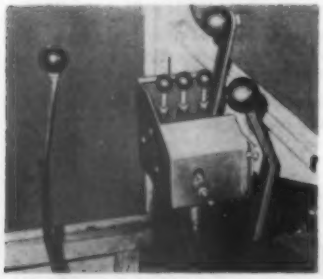
● A new TS-Traveler gravel screening, crushing, and loading plant has been introduced by Universal Engineering Corp. Completely redesigned, the new unit consists of a 1½-yd. shovel, loading hopper with trap grate, reciprocating 19-in. plate feeder, 2- x 4-ft. inclined gyrating screen, a 1024 roller bearing jaw crusher, 24-in. folding channel frame front delivery conveyor, clutch control, and operator's platform and power in a new arrangement on a pneumatic-tired gooseneck truck. → (69)



● The United Mfr. Company announces its new and improved type of Transverse spring-mounted axle assembly. The unit is designed to incorporate a smaller axle beam while transporting a comparable weight previously requiring a larger axle. It is available in 2 or 4 wheel assemblies with weight capacities up to 3000 lb. per axle. ↟ (71)

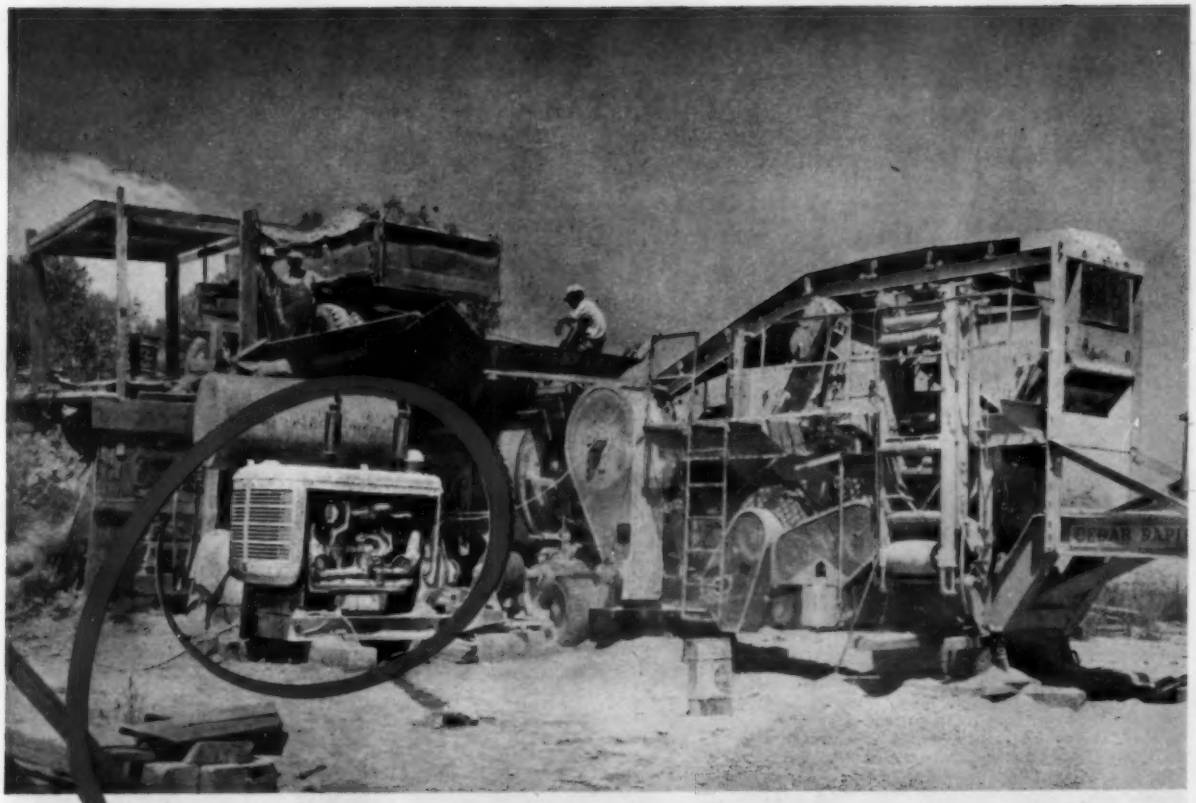


● The Steelflex spacer, made by Falk Corp., is ideally suited for quick connection and disconnection of shafts on installations that require more than a normal gap between connected shafts. This new coupling design substantially simplifies installation and maintenance procedure. ↟ (72)



● Machines in the ½- and ¾-yd. classes, built by The Thew Shovel Co., are now equipped with "E-Z" action controls, which it is claimed reduce the effort on the operating levers by 70 percent. ↟ (73)

● A new Bulkmobile engineered and made by Baughman Mfg. Co. handles big jobs. The model pictured here has a capacity of 780 cu. ft. Other models are available in lengths from 15 ft. to 33 ft., and with body sides up to 36 in. high. Rapid discharges, ranging from ½ to 2-tons per minute are possible. Screw conveyor, belt and bucket elevator, belt conveyor, and distributor for spreading purposes attachments are available. Other features include: full hydraulic operation for both body conveyor and discharge accessories; and compartmented body for multiple deliveries. → (74)



JUST BEFORE THE DUST STORM. A truckload of big rock goes tumbling into the hopper and the INTERNATIONAL UD-18A diesel power unit is all set to drive the Cedar Rapids, Jr. crusher, an operation that creates a miniature storm of rock dust. Superior sealing of INTERNATIONAL diesels against abrasive dusts makes them ideal for jobs like this.

No Downtime on UD-18A in 2 Years Work in Rock Dust

125 HP. INTERNATIONAL diesel starts fast in any weather, produces 900 tons of crushed stone in 10 hours for Denver firm

The Brannan Sand & Gravel Company, Denver, Colorado, have the solution to the problem of getting peak crusher production in extremely dusty conditions—with a 125 HP. INTERNATIONAL UD-18A diesel power unit driving a Cedar Rapids, Jr. crushing plant.

Plant operator Dick Wright makes this report:

"The UD-18A has operated for two years—3400 hours—in a severe dust condition but we have never had a minute's trouble with her. Production runs 900 tons in 10 hours and although the engine sits out in the open all through the winter, it always kicks off quick on the coldest mornings."

All-weather starting and superior engine sealing against abrasives are but two features that make INTERNATIONAL diesels leaders in the 4-cycle diesel field for pit and quarry power. They deliver a full measure of power at speeds where it can be used for heavy-duty work. They have necessary weight for long-life operation . . . heavy flywheels, and crankshafts along with instant-responsing injection and combustion systems . . . just what quarry operators need to operate crushers at uniform selected speeds under variable loads without stalling under overloads.

As an original or replacement power in crushing and screening plants, it will pay you to specify INTERNATIONAL. Get all the facts on how INTERNATIONALS will boost your production and lower operating cost, from your nearby INTERNATIONAL Industrial Power Unit Distributor or Dealer. Remember, he's the fellow who can provide the best of after-sale parts and service support for your quarry engines. Check with him today.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

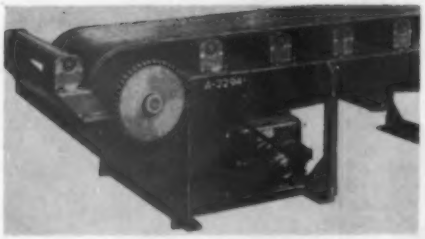
INTERNATIONAL HARVESTER

INTERNATIONAL
INDUSTRIAL POWER

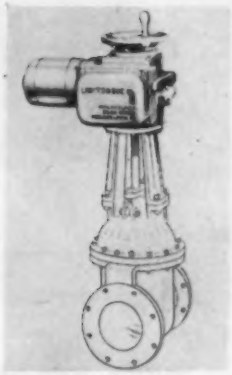
MAKES EVERY LOAD A PAYLOAD

● A Hercules Model JXLD engine furnishes dependable power for this Hough TM "Payloader" tractor. The Hercules 6-cylinder gasoline engine not only furnishes propulsion power, but also operates the extensive electrical system and a large capacity air compressor. The "Payloader" has been fitted for operation as a railroad car switcher. The air compressor supplies the railroad car brakes. ← (75)

● The Schramm sump pump can be dropped in the water, eliminating priming; and can be operated by any 105 or 125 cfm compressor. It is small and light-weight, easy to transport to the job, and requires little space for storage when not in use. The Schramm pump is rated at an exceptionally high capacity. This pump removes water from trenches and excavations and also handles such materials as mud and raw sewerage. The unit is easy to operate and works from power units already available in most pits and quarries. → (76)



● This Saco sectional bag conveyor made by Stephens-Adamson, is a heavy-duty unit designed for handling bags, boxes, and cartons. It is available in 18- or 24-in. belt widths with standard 20-ft. interlocking sections. Drive units are equipped with tail shaft mounted sprockets for powering driven units. ↑ (77)

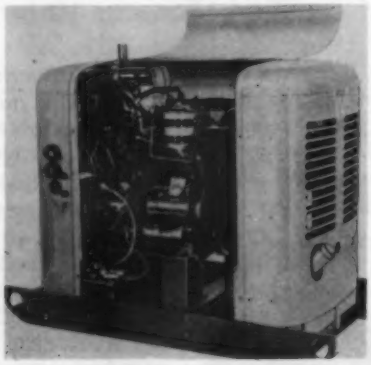


● The illustration shows the SMA-000 LimiTorque motor-operated valve control, made by the Philadelphia Gear Works, Inc., mounted to a gate valve. It limits the amount of torque applied to valve-operating members, thus preventing possible damage to stems, discs, and valve seats due to overload. ↑ (79)

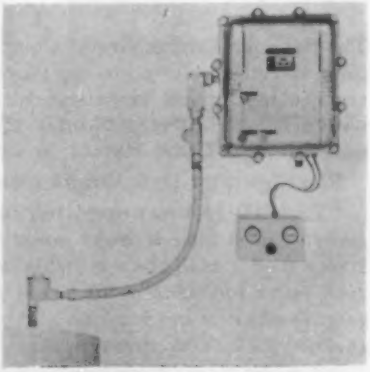
● A new angling blade bulldozer designed for use with the Caterpillar 74-in. gauge D6 tractor, the Balderson BA16X inside-mounted angling bulldozer is built to attach to the engine frame of the tractor. It uses Cat hydraulic or cable controls. Tracks are free to move up and down over rough terrain without putting twisting strain on the main frame. ↑ (80)

● A complete new industrial line of low-maintenance, high-speed A.-C. Bumblebee welders is now available from Air Reduction. The new Airco welders, NEMA rated 300, 400, and 500 ampere models, feature stepless current control, silicone insulation, aluminum coil windings and are equipped with a large current scale, which the operator can read from a considerable distance. ← (78)

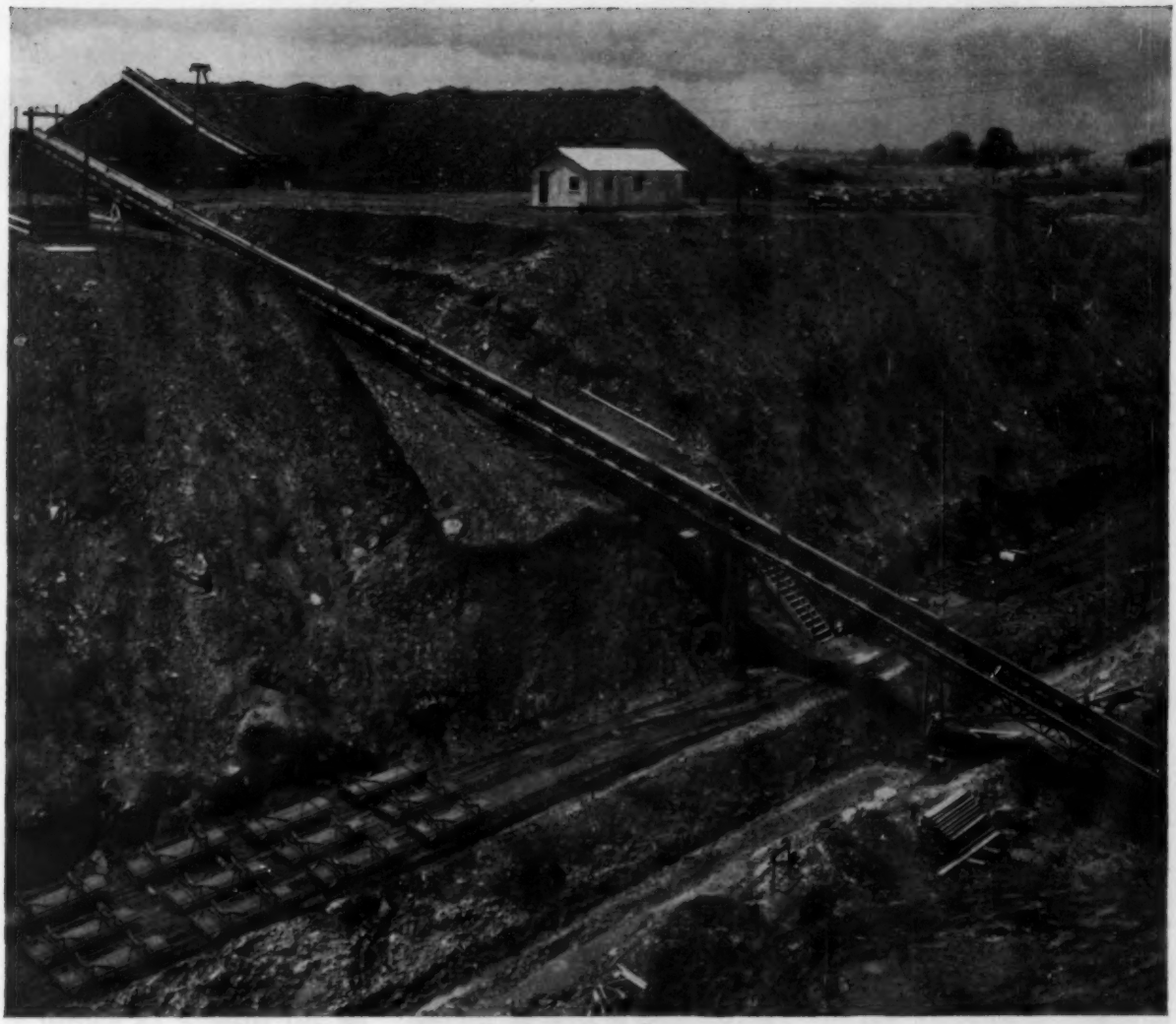
● Rema, a new self-vulcanizing rubber repair material, is in this kit put up by the Flexible Steel Lacing Co. Everything needed to make speedy, thorough repairs of damaged conveyor belts is included in this one handy case. Rema is not just another cold patch, it vulcanizes to your belt by a chemical process and then seals the repaired area with an abrasive resistant cover stock patch. ↓ (81)



● The Willys Power Unit is fully equipped with radiator, gas tank, air cleaner, complete electrical equipment and governor. The enclosure is a heavy-gauge, steel housing designed for both rugged duty and attractive appearance. The Power Unit is mounted on heavily reinforced skids. Any of the 4 Willys industrial engines can be assembled into the power unit: the Jeep of 45.5 max. dyn. BHP; the Hurricane at 51 BHP; the Lightning rated at 56 BHP; or the Giant Hurricane of 60 BHP. ↑ (82)



● An extremely sensitive and highly accurate self-balance recorder-controller has been developed by the Robertshaw-Fulton Controls Co. It is primarily for the measurement and control of levels of liquids, granular solids, interface and other conducting or non-conducting substances. It provides a recording, indicating, and controlling instrument accurate to within ¼ of 1%. ↑ (83)



This Belt Puts Muscle In Your Moving For Heavy Loads

Here's an all-purpose conveyor belt that handles aggregates, gravel, sand, cement, concrete, slag, limestone . . . even coal or bricks. It's tough . . . but it's also flexible. Whether you've got a "carry" of a few feet or a mile . . . regardless of extremes in weather and exposure . . . this belt is unexcelled for conveying a variety of tough materials . . . and for long life.

Ebonite-Reliance has a cover tensile strength of 2500 to 3000 pounds average, and a friction pull of 16 to 19 pounds average. Its carcass is formed of multiple plies of highest quality cotton duck, with skim coats between plies. It is also available in the new high tensile cotton, and rayon fabrics. Cover thickness as desired; and a breaker strip, if specified. Mildew inhibited throughout. Can be made in any length, and in widths up to 72".

We also manufacture a complete line of industrial rubber products: belting, hose, packing and moulded rubber for every need. *Through your Quaker and Quaker Pioneer distributor* our research and engineering services are always availaole to help you solve any industrial rubber problem. *Write for name of distributor.*

QUAKER RUBBER CORPORATION
Philadelphia 24, Pennsylvania

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A general view of pit and plant operations of the Curtis Gravel Company, which processes aggregates under a sub-contract from The Dalles Powerhouse Constructors.

Aggregates for Dalles Dam Project Processed by Two Firms

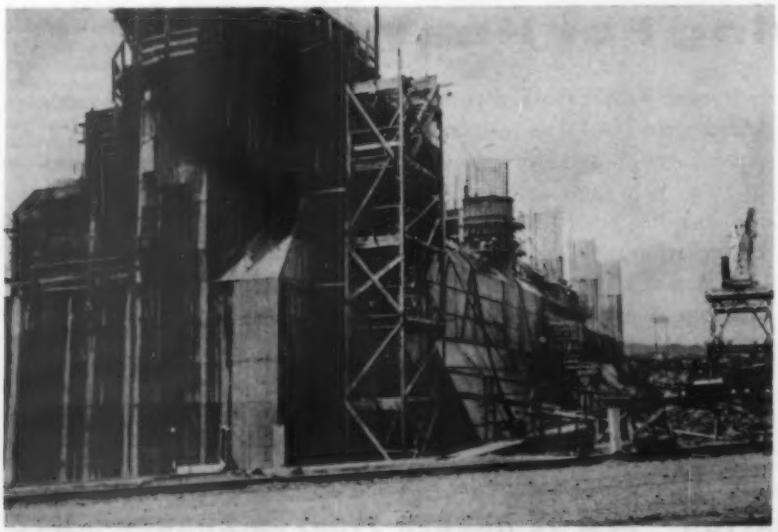
By HARRY F. UTLEY

another ON THE SPOT report

LARGEST of the government projects currently under construction in the Pacific Northwest is The Dalles Dam. Located on the Columbia River between Oregon and Washington and about 3 miles upstream from The Dalles, Oreg., the Corps of Engineers job includes a 23-gate concrete gravity overflow spillway, a powerhouse with 14 initial 78,000-kw. generating units, barge locks for navigation, and fish-passage facilities. Construction started in March, 1952, but the big push did not really get under way until the spring of 1954. The first generating units are expected to go into service in 1957. Cost of the dam is estimated at between $350,000,000 and $400,000,000.

Two contractors are now at work on the project. The Dalles Powerhouse Constructors' $29,820,997 contract includes the 14 main unit bays of the powerhouse and is the joint venture of nine separate construction firms. Guy F. Atkinson and the Ostrander Construction Company combined forces to win the contracts for the spillway dam and the substructure for the remaining 8 unit bays of the powerhouse, the combined bids totaling $33,323,985.

Each contractor has his own pit operation, aggregate-processing plant, and concrete-mixing facility. Each selected his own method of producing and preparing his material to comply with Corps of Engineers specifications. An aggregate deposit on the Washington side, about 2½ miles north of the project was preselected by the Corps after considerable exploration and test-drilling, and both contractors excavate material in the area. Natural gradation is such, however, that the deposit yields only about 25 percent of the total sand requirements. One contractor —The Dalles Powerhouse Constructors—makes up for the deficiency by importing sand in the No. 4 to No. 50 range, trucking it about 10 miles from a bank near Lyle, Wash., and blending it in on the pit-run conveyor. Atkinson-Ostrander manufactures its additional sand requirements by rod-milling surplus oversize. The Dallas Powerhouse Constructors processes all aggregates at a plant adjoining the deposit and trucks finished aggregates to the dam site; Atkinson-Ostrander trucks pit-run to its processing plant close to the spillway dam.



Concrete placement on the spillway dam was well advanced in the summer of 1954, as this picture shows.

The Dalles Powerhouse Constructors Instead of producing aggregates with its own forces, The Dalles Powerhouse Constructors has subcontracted production to the Curtis Gravel Company of Spokane. This is the second such venture for the Curtis firm; earlier it had completed a sub-contract to produce all the aggregates used in constructing Albeni Falls Dam[1], located on the Pend-Oreille River in Idaho.

The deposit consists largely of rounded basalt particles with some quartz in the finest portions, a gap grading occurring on the No. 30 sieve. Loading into dump trucks is done mainly by a Bucyrus-Erie 2½-cu. yd. shovel for the short haul to the receiving hopper. A Syntron feeder beneath the hopper regulates the flow to a 24-in. by 36-in. primary jaw crusher set to bring everything down to a top size of 3 in. An inclined conveyor builds up a surge pile, which in turn feeds a scalping screen and the secondary crusher, located about mid-point between the pit hopper and the final washing-and-sizing plant. The screen, a Simplicity 4- by 12-ft. three-deck unit, rejects oversize as desired to a Symons 4¼-ft. cone crusher in closed circuit. Screens and cone-crusher products are then ready for washing and sizing and are carried up to the main plant by a 30-in. by 276-ft. belt-conveyor. A Symons 3½-ft. cone crusher recrushes surplus sizes rejected, if desired, at the primary sizing screen.

Blending sand is stockpiled as delivered by dump trucks arriving from Lyle, a stacker belt building up a storage pile above a tunnel. Reclamation is by way of a Syntron feeder regulated to feed a proper amount to match the deficiency in the pit material which, of course, varies from time to time. The feeder lays the ribbon of sand on a short conveyor which discharges on the 30-in. by 276-ft. belt running up to the top of the washing-and-sizing plant.

Two Simplicity 4- by 12-ft. screens and two 5- by 12-ft. double-deck screens equipped with washing jets prepare the coarse aggregates, the three finished sizes—minus 3-in. plus 1½-in.; minus 1½-in. plus ¾-in.; and minus ¾-in. plus No. 4 mesh—all being separately stockpiled by inclined belt conveyors. Rock ladders lower the sized rock to minimize degradation. Minus No. 4 mesh sand and water pass to an Eagle 10- by 20-ft. water-scalping tank, followed by a pair of Eagle double-flight screw classifiers. The finished, blended sand is then stockpiled in a similar manner as is the gravel, making four piles of finished aggregates in all. Four separate tunnel conveyors load out the aggregates by way of individual truck-loading bins. The plant has a capacity of about 300 t.p.h. Drilled wells supply the wash-water requirement of 2,500 g.p.m.

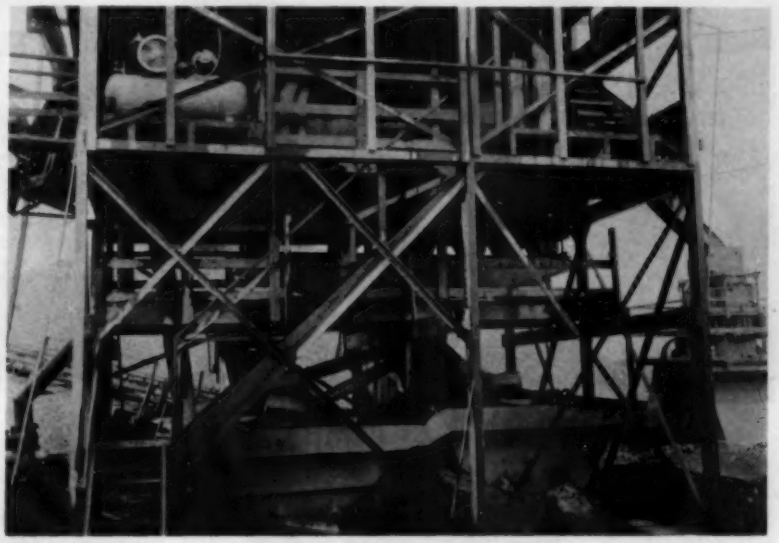
Caterpillar DW20 wagons deliver the aggregates to The Dalles Powerhouse Constructors concrete plant near the powerhouse construction site. The material is stored by conveyors in piles over a tunnel, a conveyor inside the tunnel recovering and delivering the aggregates to the bins above the batch plant.

The original Constructors batch plant collapsed, reportedly because of structural failure, late in the spring of 1954 and the contractor replaced it with the C. S. Johnson plant which formerly had seen service in the building of Detroit Dam on the North Santiam River in Oregon[2]. When the project was visited in July, 1954, the new concrete plant was just getting into operation. Bin capacity is 750 cu. yd., and controls are fully automatic. Three Koehring 4-cu. yd. full-tilt mixers are preparing the concrete. Several Koehring Dumptors, each carrying a 4-cu. yd. batch, transfer from ramps to the concrete-placing buckets, which are handled by whirley cranes.

Atkinson-Ostrander The maximum size aggregate used on the powerhouse is 3 in., whereas a 6-in. top size is utilized in the spillway dam concrete. Likewise, the fine-aggregate grading for the spillway is a great deal more criti-

[1]See PIT AND QUARRY, August, 1952.

[2]See PIT AND QUARRY, October, 1950.



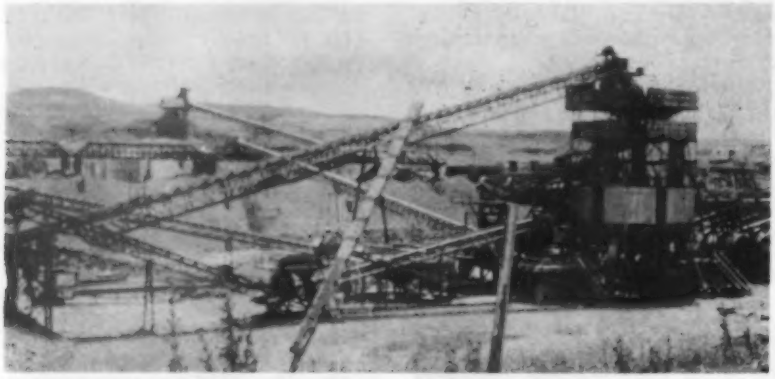
The water-scalping tank and the screw classifiers for sand (below) at the Curtis plant. At the right is the tertiary crusher.

Erection of the concrete plant replacing the one which collapsed early in 1954 was nearing completion when this picture was taken in July.

cal than that specified for the powerhouse, so the Atkinson-Ostrander aggregates plant, as expected, involves more painstaking processing methods, particularly in the sand department, than the one just described. Much of the equipment was formerly installed in the Atkinson-Ostrander plant which supplied the aggregates for McNary Dam, about 100 miles upriver from The Dalles.

The Atkinson-Ostrander plant has a capacity of about 400 t.p.h. and, as previously mentioned, was by choice erected at the site of construction conveniently near the spillway concrete plant. The pit-run gravel and sand are excavated by a Bucyrus-Erie 54-B 2½-cu. yd. shovel which loads Peterbilt 30-cu. yd. bottom-dump truck-trailers. These units, after the 2½-mile haul, drop their loads into a 30-ton hopper spanned by a grizzly with bars spaced 14 in. apart.

A Telsmith 4- by 7-ft. plate-feeder puts the raw aggregates on a conveyor running to a Symons 3½- by 5-ft. vibrating grizzly. The plus 6-in. grizzly rejects drop to a Cedarapids 25- by 40-in. jawcrusher in closed circuit with the scalper, the crusher product joining the grizzly throughs on an inclined belt-conveyor which builds up a raw surge pile of 5,000 tons' live storage capacity. All processing plant feed is withdrawn from this pile, the tunnel belt inclining to

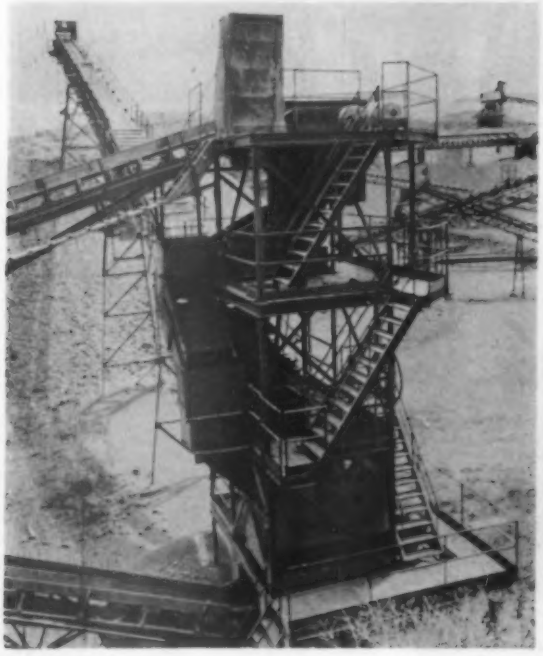


Above, left: The aggregates-processing plant of Atkinson-Ostrander is near the concrete plant and the spillway dam site.

Left: This pair of screens makes the primary separation in the sand department of the Atkinson-Ostrander plant.

Below, left: Material in the Atkinson-Ostrander raw surge pile (background) is brought to minus 6-in. size by a vibrating grizzly-jaw crusher installation in this primary tower.

Below, right: The two end-fed peripheral-discharge rod mills at the Atkinson-Ostrander plant which manufacture sand to make up for pit deficiency.



DRAGON CEMENT CO.
never runs out of jobs
FOR OLD NO. 1

"Old No. 1" is a 500-cu.-ft. Worthington compressor powered by a Caterpillar D13000 Diesel. It's shown here doing one of the most unusual jobs in its eight years of hard work life. Dragon Cement Company, Inc., of Thomaston, Maine, is drilling a tunnel 33 ft. in diameter, 350 ft. long under a highway, opening up a new rock supply. "Old No. 1" supplies steady, reliable power eight hours a day, often seven days a week, the year around—just as it has since 1946 with only one overhaul.

Dragon Cement has another D13000 in a second compressor which has also been on the job about the same length of time, and with the same record of trouble-free performance. In addition, the company has two CAT* D3400 Engines in Keystone well drillers, plus two Caterpillar track-type Tractors.

H. B. Kaler, assistant superintendent, says that Dragon likes Cat equipment because of easy, low-cost maintenance and sure-fire starting in cold Maine winters. In pit and quarry work, Caterpillar-designed seals and filters keep lubricants *in* and harmful abrasive particles *out*. Also important in high-profit performance is the Caterpillar fuel injection system, which delivers full power *without fouling* on inexpensive No. 2 furnace oil.

The *new* Cat D13000, with increased horsepower, develops more power per gallon of fuel and is built for even longer work life and easier maintenance. Your Caterpillar Dealer—who provides fast, dependable service—will gladly give you more information on this and other Caterpillar Diesel Engines and Electric Sets, to 520 HP and 315 KW.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

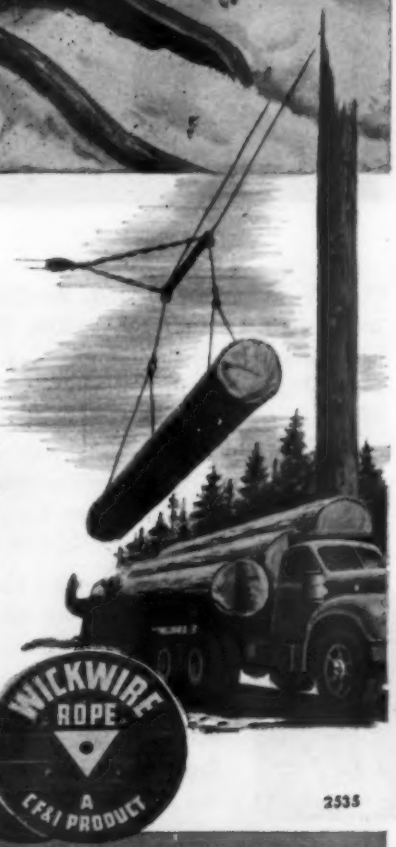
MODERN
HEAVY-DUTY POWER

now—the logs are lighter with MUSCLES OF STEEL

Gone are the days when muscles of man and beast were the only means of loading and hauling big timber out of the woods. Supplying present-day lumber needs is a job that would lick ten thousand Samsons.

It's a job that demands *muscles of steel*—rugged wire rope that lifts and pulls the heaviest logs with strength to spare.

We of Wickwire play a big part in furnishing these *muscles of steel* to American industry. Wherever wire rope is used—timbering, drilling, construction, mining, fishing, materials handling—there also you'll find Wickwire Rope helping to do a better, more efficient job. That's the reason for the quality and extra care that go into its making.



***every* industry benefits from wire rope**

WICKWIRE ROPE

PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

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THE COLORADO FUEL AND IRON CORPORATION—Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
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discharge the material at the top of the plant, where a pants-leg splitter divides the load equally to a pair of Symons 4- by 12-ft. double-deck screens. These screens and those which follow are amply equipped with washing sprays, and nozzles in the splitter introduce the initial wash water before the material has a chance to hit the first screens.

A second pair of screens, identical with the first two, except for the size of cloth, follow in series. These four screens clean and size the four finished coarse materials—minus 6-in. plus 3-in.; minus 3-in. plus 1½-in.; minus 1½-in. plus ¾-in.; and minus ¾-in. plus No. 4. Each size is separately chuted to the four 67-cu. yd. compartments of a surge bin and eventually, and ordinarily, will reach the finished storage piles *via* stacker belts.

Screen throughs pass along to a pair of Symons 4- by 8-ft. single-deck wet screens which extract sand in the minus No. 4 plus No. 8 range; and the coarse sand is collected in another surge bin for withdrawal as finished sand, as rod-mill feed, or for makeup use.

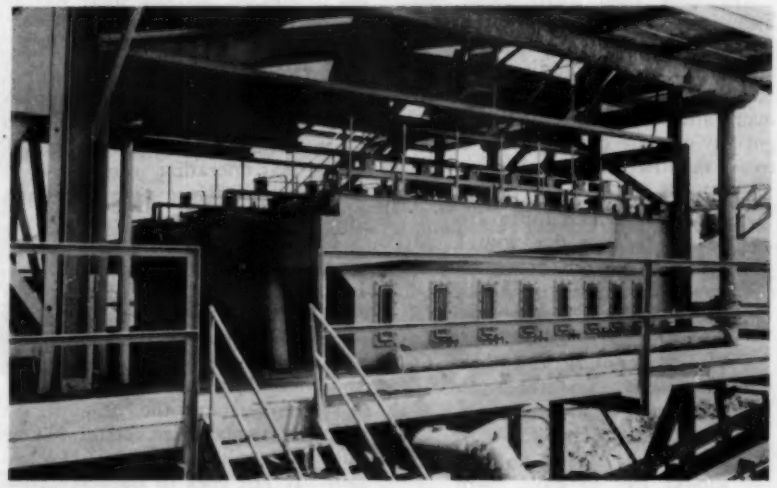
The coarse-aggregate surge bin, in addition to supplying finished material to storage, may also be drawn upon, in the minus 3-in. sizes, to supply feed to the secondary crushers and the rod mills. Three Symons cone crushers—a 4-ft. standard and two 3-ft. shortheads—make the secondary reductions; the products returning, *via* a Symons 4- by 12-ft. screen in closed circuit, to the main belt to balance size deficiencies; or the minus ¾-in. crushed product may be directed to the rod-mill feed bins.

Minus No. 8 mesh sand and water from the two 4- by 8-ft. screens in the sand department passes to two 48-in. Wemco spirals which act as water stabilizers prior to classification of the sand in three Dorr 8-pocket sizers. The water overflowing the weirs of the spirals contains considerable fine sand in the minus No. 150 mesh range; this is piped to a Wemco 32-ft. dia. hydroseparator for dewatering. The hydroseparator product is then returned by a Wemco 4-in. pump to the pocket sizers. In the event there is a surplus of these extreme fines, provision is made to waste the product.

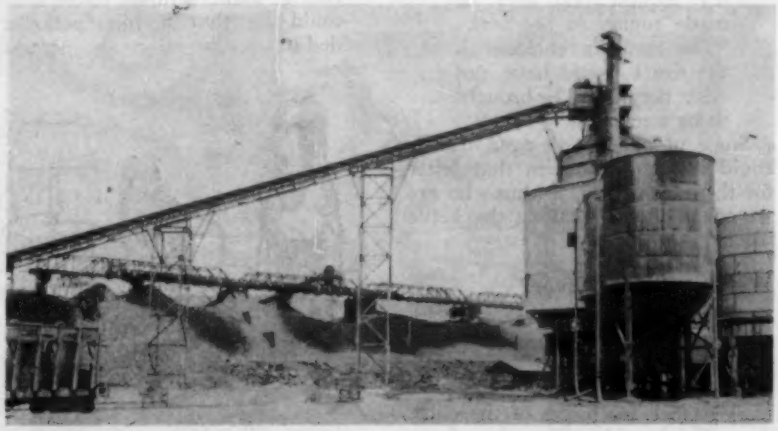
A distribution box accurately splits the sand from the spirals into three parts to feed the Dorr sizers. The 24 spigots which eject the sand sized hydraulically in the sizer pockets are fitted with hoses to divert the vari-

(Continued on page 111)

The two screw classifiers (foreground) operate as sand-water stabilizers in the Atkinson-Ostrander plant. In the distance is the tripper-equipped bridge conveyor which builds up piles of finished aggregates.

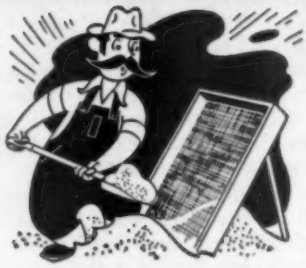


Three 8-pocket hydraulic sizers classify the minus No. 8 mesh sand in the Atkinson-Ostrander plant after it has passed through the screw classifier shown above.



The Atkinson-Ostrander concrete plant and finished-aggregate storage piles which supply batching requirements.

Screenings



by Ray L. Smith, Jr.

THIS month we honor the birthdays of two of our greatest presidents. One was a large landowner; the other was born in a log cabin and never attained wealth. But in many respects they could have been twins. Both were fair-minded, friendly men. They loved folks. Lincoln, especially, had the gift of using short words, but he could also dip into his large vocabulary for a longer word to better express his thought.

We have read many times one little letter by George Washington. There is a chuckle in it, as well as a warning for all middle-aged men. It was probably after the war was over, and when George no longer got any exercise cutting down cherry trees, that he wrote the following:

> "By Doctor Gregg, I send you $6.92, which appears to be the balance due you. I pray you get me made, by measure enclosed, a pair of the nicest and best leather breeches.
>
> "I know not at this time who is esteemed the most celebrated maker, or I would not trouble you with so small a matter. . . . I should like to have them sent as soon as possible, and I thank you for reiterating my request that they be made *roomy in the seat.*
>
> "The measure enclosed is the size I would have, not what they could be brought to by stretching."

Some of our middle-aged friends could see a warning in that letter for themselves, and . . . but who are we to be the pot calling the kettle black?

Want a Bit of Dover?

THE white cliffs of Dover are helping to bring dollars to Britain. A steady stream of orders, mainly from Americans, pour into the town clerk's office for pieces of the cliffs. An official said, "The Americans never forget to enclose the cost of postage." Exiled Britons also send orders for pieces to remind them of England.

At this rate, in a thousand years or so the white cliffs of Dover will be reduced to the white beaches of Dover. Could be, that in time, the whole of Her Majesty's island would be transplanted across the big pond. Seems to us, some one should tell Scotland Yard about the deal, 'cause they sure would be in a dither trying to find the island if there was no ground to stand on.

And A Gentle Shove

A TEMPERAMENTAL hippopotamus recently wrecked a contractor's sand-pumping machine, which was operating from a raft in the Hunyani River near Salisbury, Southern Rhodesia.

The equipment made too much noise for the hippo's sensitive ears. It charged the machine and the four Africans operating it, forced the raft out of the water up onto the bank, and then kicked it, stamped on it, and chewed up the rubber pipes.

We understand the beast didn't even stop to apologize, and you know one just can't sue a hippo for assault. It just goes to show how discouragingly difficult it is to do business nowadays.

Dredge manufacturers please note —could be that a hippopotamus added to your payroll might increase sales.

"I made some tracks in that fresh cement ... but I think I smoothed 'em out right."

Forever Gypsum

BABIES and gypsum seem like strange partners; but the more babies, the better for the gypsum industry.

One of our clipping services has sent us this fascinating item, which goes on to say, that, because of the continuing growth of the population, the gypsum boys, like almost everyone else in the construction business, see only rosy prospects ahead.

Record baby crops help fire up the housing industry. Increased consumption sparks industrial expansion . . . and construction.

Recently a couple of the principal companies in the field have built basic research centers to lead to new and better products . . . at a reduced cost to the consumer.

Some practical soul will inevitably point out that all we need to do is step up production of both partners, and eventually costs will be reduced to a point where the gypsum companies will have to pay us. Maybe we're witnessing the dawn of the Gypsum Baby.

Potpourri and Succotash

Her birthday came while her miserly husband was out of town on a business trip. However, she received a letter from him, and inside the letter was a check. She was elated—until she read the check. It was for a million kisses! The following day she wrote an answer: "Dear Ralph: Thanks for the birthday check for a million kisses. The milkman cashed it for me this morning."

Foreman: "I suppose you wish I were dead so you could spit on my grave?"

Laborer: "Nope, I hate to stand in line."

. . . Did any of you get the suggested Valentine greeting for husbands, wives, inlaws — "I Don't Know How I Could Get Along Without You, But I'd Surely Like to Try." Want to send us one?

CUT RAW GRINDING COSTS

with

B&W Type B Pulverizers

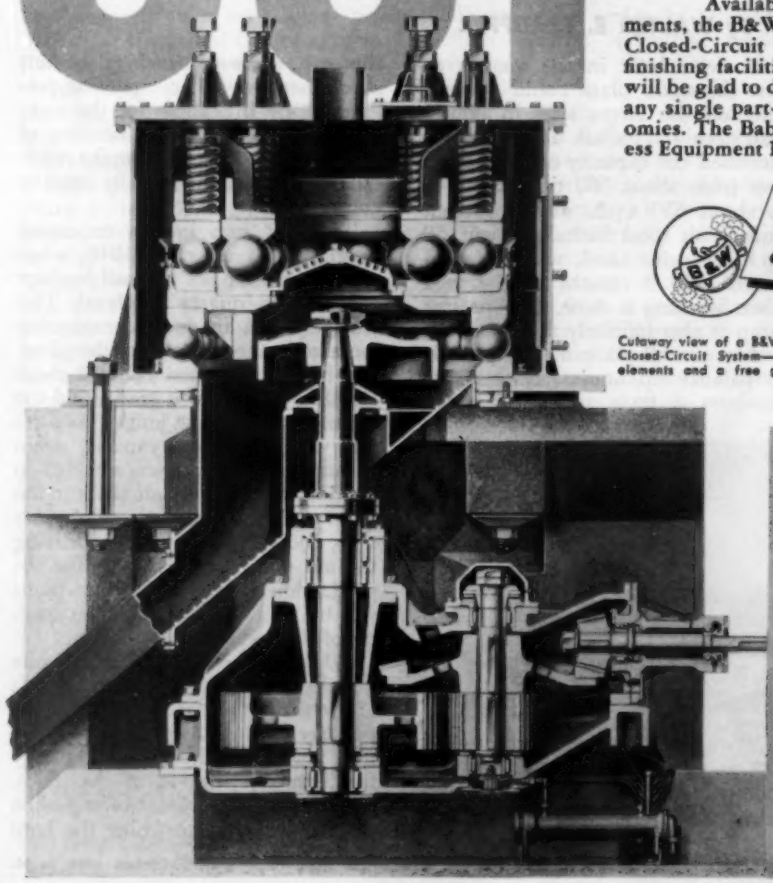
POWER DEMAND With grinding elements operating on the ball-bearing principle and with an extremely low friction loss, the B&W Type B Pulverizer delivers maximum capacity of product with low power demand.

MAINTENANCE COSTS Uniform, self-equalizing wear of the tough, alloy, grinding elements assures low maintenance throughout their long life. Easy access facilitates replacements when finally necessary.

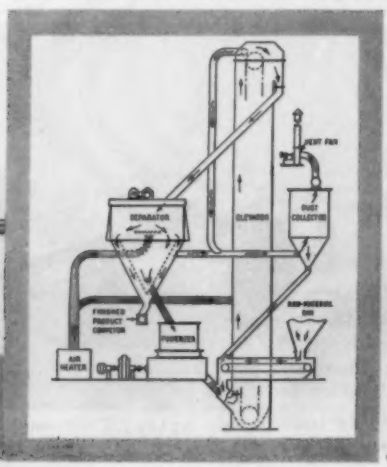
SPACE REQUIREMENTS Powerful yet compact, the Type B Mill provides far higher capacity in equal space . . . can replace other types without additional structure.

Available in sizes suitable to all capacity requirements, the B&W Type B Pulverizer is the heart of the B&W Closed-Circuit System. If you plan to expand your rock finishing facilities or modernize present equipment, B&W will be glad to discuss your plans—from first to last grind or any single part—in terms of increased raw grinding economies. The Babcock & Wilcox Company, Boiler Div., Process Equipment Dept., 161 East 42nd St. New York 17, N. Y.

BABCOCK & WILCOX



Cutaway view of a B&W Type B Pulverizer—heart of the B&W Closed-Circuit System—which employs three sets of grinding elements and a free gravity discharge.



Diagrammatic arrangement of equipment in typical B&W Closed-Circuit Drying and Grinding System.

C-204

THREE-IN-ONE Ohio Operation

Wagner Quarries Company's operation near Sandusky, Ohio. The main plant and the stockpile are in the background; the supplementary fine-crushing plant is at the right.

Achieves High Flexibility

Large raw-stone stockpile and 490-ft. reclaiming system permit balanced production.

By WALTER E. TRAUFFER

another ON THE SPOT report

THERE are many ways in which the capacity of a plant can be increased to meet growing demands. When the Wagner Quarries Company of Sandusky, Ohio, was confronted with this problem, it was solved in a very unusual manner, which was nevertheless highly efficient and economical. In this process the capacity of the existing plant was first increased to the maximum possible; then a supplementary fine-crushing plant, and later an agstone plant were built in the quarry, so that the main plant could concentrate on the larger sizes, primarily road stone and ballast. These changes increased the capacity of this operation from about 360 t.p.h. in 1946 to about 650 t.p.h. at the present time. This total includes about 50 t.p.h. of stone sand, which is produced only 9 months of the year when washing is done. The present setup is also infinitely more flexible, and by careful planning it is possible to balance up uneven demands so that no excessive stocking of any sizes is necessary. The expansion program made it possible for the company to supply large quantities of stone for the Ohio Turnpike without neglecting any of its regular customers.

The raw stockpile with the 490-ft. reclaiming conveyor to the main plant (background).

The first step in this expansion program was taken in 1946, when trucks replaced the old rail haulage system from quarry to plant[1]. This change alone made a considerable increase in the capacity of the plant. The haul to the plant included about 1,600 ft. of 4 percent grade, and the distance kept getting longer. As a result, when additional capacity again became necessary, it was decided to build an entirely separate plant in the quarry for the production of finer sizes, including stone sand, leaving the old plant free primarily for the production of large sizes. This plant was built in 1948 and has a capacity of 70 t.p.h.

When further expansion became necessary, it was decided to do this at the main plant by putting a larger primary crusher in the quarry, along with a surge stockpile with capacity for 3 days' operation of the plant. These changes were accomplished in 1950, greatly shortening the haul

[1]See PIT AND QUARRY, February, 1946, p. 85.

One of the fleet of eight trucks, discharging to the supplementary fine-crushing plant.

from the quarry and eliminating the long grade. It also made the plant independent of the quarry, so that it could be operated at full capacity all the time. The crusher is rated at over 500 t.p.h. and the plant at up to 700 t.p.h.

The latest step, completed in the summer of 1954, was the installation in the quarry of a small plant primarily for the production of agstone. This unit not only produces fine materials which are in demand but it also uses up an excess of No. 7 screenings for which there is little demand. The capacity of this plant is 50 t.p.h.

Stone for the main plant is discharged on a 42-in. by 12-ft. apron feeder which has its sides built up to give 40-cu. yd. capacity. This feeder gives full control of discharge into the 60- by 48-in. Allis-Chalmers primary jaw crusher, which is driven by a 320-hp. synchronous motor and has a Trabon lubricator. The minus 7-in. product of the crusher is discharged by a Robins vibrating feeder onto the 42-in. by 500-ft. stockpiling belt conveyor, which discharges the stone from a height of 80 ft. above ground level onto the 50,000-cu. yd. surge pile.

About 40 percent of this pile is live storage which is reclaimed through two openings in the reclaiming tunnel under the pile. Two Jeffrey electric vibrating feeders serve the 42-in. by 490-ft. belt conveyor, which is inclined to a height of 35 ft. and then becomes horizontal, to the main plant building. The stone is discharged through a chute to the 21-in. Allis-Chalmers gyratory crusher which formerly was the primary crusher. Its minus 4-in. product is elevated to the top of the building. Screening is done by five 3-deck and four 2-deck vibrating screens—Tyler and Simplicity; further reduction is by three hammermills—two Universal and a Stedman; and stone sand is produced by an Eagle twin-screw washer. This plant also makes ballast and the larger sizes of crushed stone.

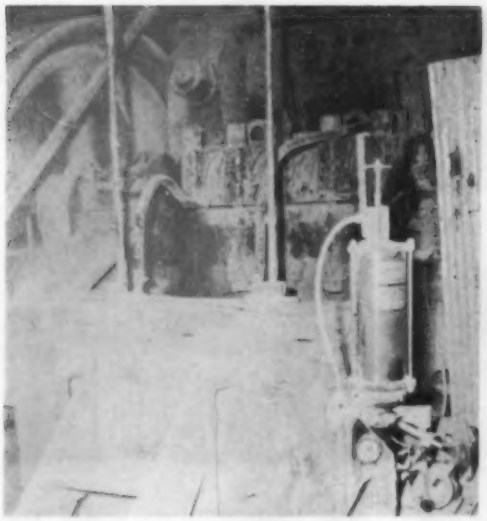
All switching for this plant is done by two diesel locomotives—a 45-ton Whitcomb and a 50-ton Plymouth.

At the small-stone plant the quarry trucks discharge to the 24- by 36-in. Universal primary jaw crusher *via* an apron feeder. Only comparatively small stone is brought to this plant, and usually one truck is detailed to do this. A 36-in. belt conveyor takes the crusher product to a Simplicity 3-deck screen. Oversize goes to two Universal hammermills and converging conveyors feed back on the main belt in closed circuit. Two vibrating screens, 2-deck and a 3-deck, do the final sizing in this plant. An Eagle double-screw washer makes concrete sand; the other products made in this plant are concrete aggregates and some agstone.

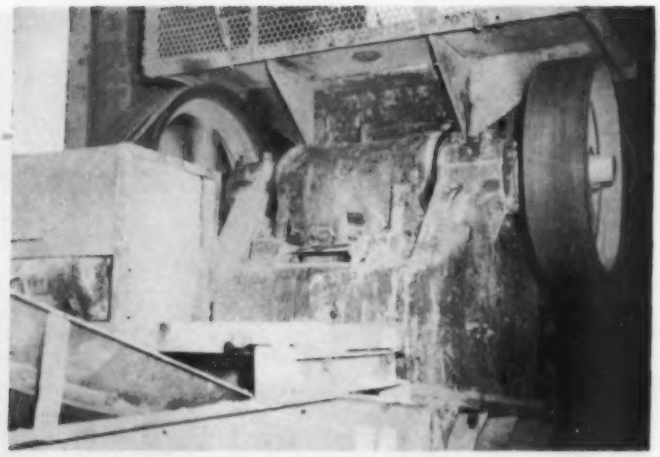
The feed for the new fine material plant—Ohio No. 7 or screenings—is hauled from stockpiles to the plant hopper in the quarry. A Robins reciprocating plate feeder discharges on an 18-in. by 150-ft. Robins conveyor to a hopper at the

Left: Newest installation is this agstone plant, built last summer; the truck ramp and the hopper are in the foreground.

Right: A quarry scene—the 3½-cu. yd. electric shovel loading one of the 24-ton trucks.



At the main plant a 60- by 48-in. primary crusher turns out a minus 7-in. product; the automatic lubricator is in the foreground.



Only comparatively small stone is crushed in this 24- by 36-in. primary crusher in the fine-stone plant.

top of the plant structure. A Syntron Vibra-Flow electric vibrating feeder discharges the stone to the Size 54 Stedman 4-row impact cage-type Disintegrator. This unit is driven at the rate of 700 r.p.m. by 125-and 100-hp. Louis Allis motors through V-belts.

A 60-ft. bucket elevator feeds through a split chute to a pair of 4- by 8-ft. Hewitt-Robins Vibrex 2-deck screens with 4- and 8-mesh wire cloth. Both decks of each screen are connected to individual Hannon 440-v. electric heating units with 8-point control. Each unit is V-belt driven by a 5-hp., 1750-r.p.m. Reliance electric motor. These two screens have kept the screening efficiency at peak levels even during the wettest weather, when the stone varied from merely damp up to very wet. The material over both decks of these screens goes back to the elevator to the cage mill. The minus 8-mesh material through the bottom decks is agstone, which is discharged into a 200-ton, 2-compartment bin. Five pairs of lever-operated clamshell gates are used for loading into trucks.

The company's holdings of limestone deposits are sufficient for many years of operation. In the 30 years of its existence the firm has quarried about 120 acres to an average depth of 45 ft., but there are still 800 acres in reserve. About half of this land is closer to the plant than the present workings, but is on the other side of a high tension line. This area will soon be opened by a narrow cut under the line. Good stone is known to exist to a depth of 120 ft.

The overburden on the deposit, averaging 4 ft. in depth, is removed by shovels and trucks. The rock is a very hard blue limestone, but in some places it is laminated and badly broken. Drilling of blast holes was formerly done with four well drills which together averaged about 16 ft. per hr. In 1951 a Joy Heavyweight Champion rotary drill was installed; it is averaging 25 ft. per hr. including moves. Bit life is about 1,200 ft. in this very hard limestone. The company was one of the first to use millisecond-delay blasting, using the Atlas Rock-master system[2], and an Atlas representative plans the shots. Shots usually consist of up to 7 holes each, bringing down about 7,500 cu. yd., and from 3 to 7 shots are made on days when blasting is being done. The face varies from 5 to 46 ft. in height.

Most of the loading is being done by a Lima 1201 shovel with a 3½-cu. yd. dipper and a Bucyrus-Erie 120B with a 4-cu. yd. dipper, both electric. An older Bucyrus-Erie 54B shovel alternates on stripping and loading. The hauling is done by a fleet of six Mack diesel trucks with 15-ton Gar Wood bodies and two Euclid 24-ton trucks which have a maximum haul of about 1 mile

(Continued on page 111)

[2]See PIT AND QUARRY, November, 1945, p. 96.

Left: Capacity of this 4-row impact cage-type crusher in the agstone plant is 50 t.p.h.

Right: One of the two 4- by 8-ft., 2-deck electrically-heated screens in the agstone plant.

two-way radio increases efficiency at International's Florida phosphate operations

The base station transmitter and antenna, comprising the nerve center of the radio communication system, are on the roof of the flotation building at International's Noralyn plant.

One important use of radio is field surveying. Here portable radio-telephones are used by the surveying crew. Instructions are sent efficiently and accurately.

By KENNETH A. GUTSCHICK

another ON THE SPOT report

TWO-WAY industrial radio has recently become an invaluable tool in numerous nonmetallic mineral industries. Used to facilitate various operations and repair and maintenance work and to expedite truck deliveries (as in the case of ready mixed concrete), two-way radio communication has boosted overall operational efficiency considerably. This story deals with one outstanding example of the use of industrial radio in the pit-and-quarry field, namely that of International Minerals & Chemical Corporation, which utilizes 50 two-way Motorola radio sets in its extensive Florida phosphate operations. There the sets are used entirely on operational activities, particularly for repair and maintenance work.

International began using radio about four years ago, starting off with 12 units. The number was increased shortly thereafter because company officials soon realized the immense value to be gained through expanded use of the radio units. Presently radios are installed in trucks belonging to the mining and assistant mining superintendents, chief mechanic, chief electrician, maintenance foremen, floating crew foremen, garage superintendent, and other key operating personnel. In addition, the firm's four large draglines and three of its bulldozers are equipped with radio sets. The field surveying crews also utilize radio communications ("walkie-talkies") in their daily activities.

To understand fully International's extensive use of radio communications, one must realize the extent of its Florida Phosphate Department and the character of the phosphate industry in general. The largest phosphate producer of the world, International operates several production units in the famous Polk County phosphate district, centered near Bartow. Included are the following plants: Noralyn—mine, washing and flotation plant, drying and grinding plant; Peace Valley—mine, washing and flotation plant; Achan—mine and washing plant; and Mulberry—drying and grinding plant. In addition the company has new office headquarters for the Florida Department at Bartow. The Noralyn plant, one of the world's largest and most modern phosphate plants, was fea-

N.A.M. Takes Action on Manufacturers' Radio Problems

The story of the use of radio in the Florida operations of International Minerals and Chemical Corporation explains why this corporation has joined in the nationwide movement to provide additional frequencies for the use of manufacturers.

Recently, the National Association of Manufacturers announced the membership of its Committee on Manufacturers' Radio Use. J. G. Ivy of International is the mining industries' representative.

N.A.M.'s Committee on Manufacturers' Radio Use was formed to interest the Federal Communications Commission in allocating more radio frequencies for the use of manufacturers' radio systems, such as International operates in Florida. Such frequencies are available. They are presently assigned to other radio services but are not being used.

The assignment of additional frequencies for manufacturers' use is the only way to avoid interference between radio systems in this fast-growing community of users. In the Special Industrial Service, where manufacturers are now licensed, there are about 7,000 stations. Not only is this band the most crowded, but it is also the fastest growing service in the mobile field; yet there are fewer frequencies assigned for this use than for almost any other group of users now employing radio.

One undesirable result of this overcrowding is severe and destructive interference, which not only prevents the installation of new radio systems but also renders some existing systems unusable. Interference of this type is already extremely severe in densely populated areas and is becoming troublesome even in lightly industrialized areas such as International's location in Florida.

Interest in changing the Special Industrial rules was first directed merely to the relaxation of the "yard area" rule. After some discussion, FCC indicated its willingness to grant a measure of relief. The proposed relief did not appear flexible enough to meet the request of N.A.M.'s committee, and the latter group countered with another proposal. As a result of the committee's efforts, the Commission decided to hold an open hearing on the rules. The committee has filed its exceptions, which will be argued orally on February 24 and 25.

A petition for a new manufacturers' radio service and additional frequencies will be filed in the near future. The recommended frequency allocation will not interfere with the present use of radio frequencies by any other service, but will pave the way for the expansion of radio use, particularly by those services employing two-way radio for communication with mobile units. For some time FCC has been aware of the necessity for providing additional space in which to take care of the growth of industrial radio. The committee believes it has a formula which will meet this situation.

tured in earlier articles of PIT AND QUARRY*. The Peace Valley operation was also described in another article.

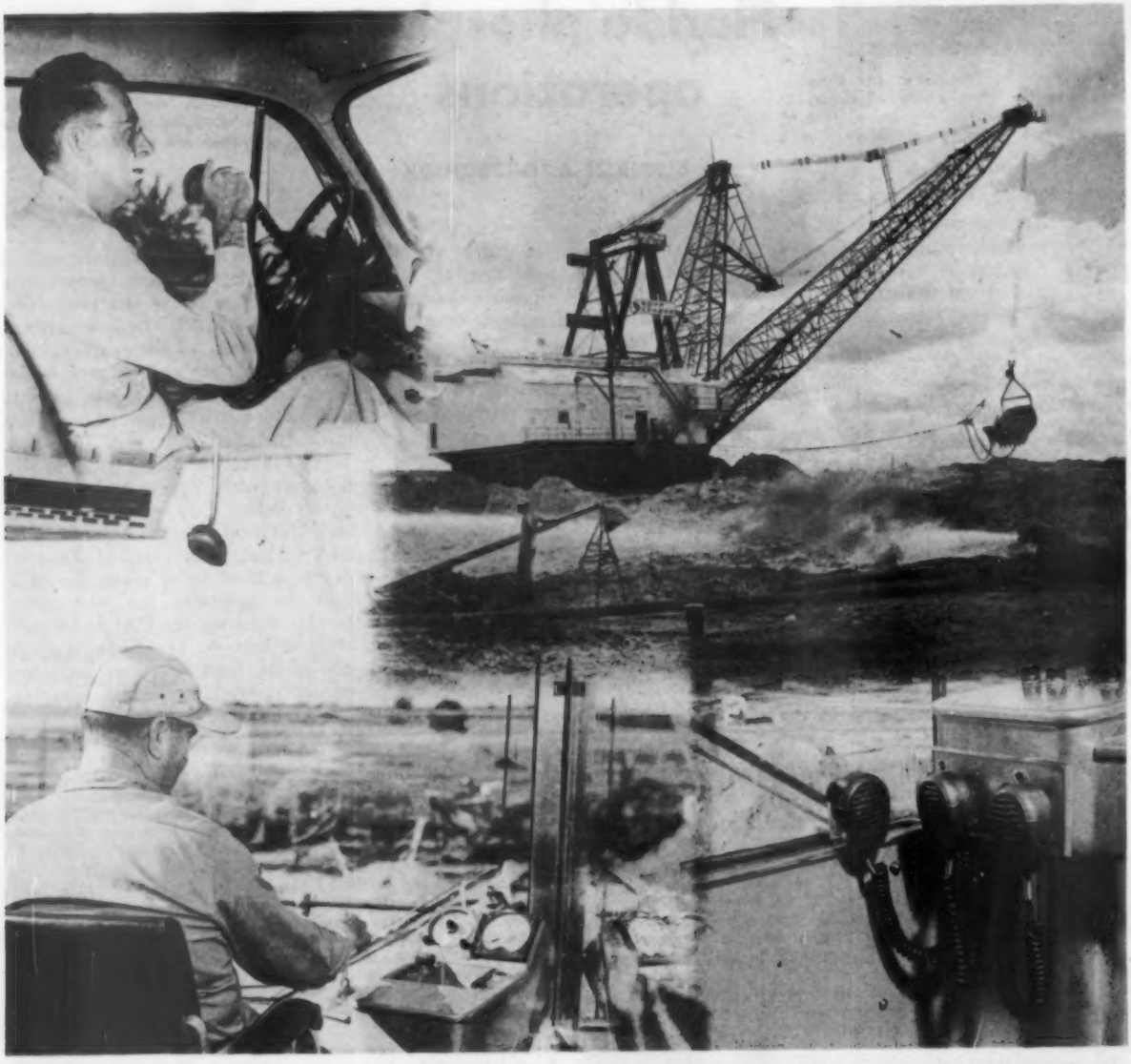
These four plants are spaced between 5 and 10 miles from each other and the mines 1 to 3 miles from the plant each serves. Furthermore the two most remote plants, Peace Valley on the east, and Mulberry on the west, are approximately 20 miles apart. Because of the widespread location of these operations, the two-way radio has served to integrate them to a greater extent than was previously possible.

Most of the mining and plant activities are operated 'round the clock and seven days a week. Because of this fact, down time for emergency repairs or routine maintenance must necessarily be kept to the minimum. The use of radio has permitted repair jobs to be completed without loss of valuable time.

International Minerals, under license by the Federal Communications Commission, operates two communications systems in the Bartow area, including special industrial (mobile) and low-power industrial (mobile). The former system broadcasts at a frequency of 154.49 megacycles and the latter at 154.57 megacycles.

The special industrial system includes a main base station which is an FSTU-140 unit having a power output of 120 watts; and also 30 10-watt FMTRU-41 mobile sets, which are installed in the cars and

*See Avery, William M., *Noralyn Revisited*, PIT & QUARRY, October, 1952, p. 84, and *Noralyn Mine Opens New Era*, PIT & QUARRY, June, 1948, p. 66.



This photo-montage shows how International uses two-way radio to streamline its dragline operation in the Florida phosphate field. Upper left: mine superintendent Tom Smith calling from his car to dragline operator, B. M. Clement (lower left), who is at the controls of International's 650B "Tillie the Toiler".

In the lower right is a closeup of the three microphones mounted in the cab next to the dragline operator. One "mike" (long-range radio) is used for contacting the mine superintendent, maintenance department, etc.; the second (low-power radio) for contacting the dragline groundman and pit pump operators; and the third ("intercom" system) for contacting the dragline oiler. Thus radio coordinates the entire operation of the dragline.

In the upper right is a view of International's recently-acquired "Super Scooper", which is also radio equipped. This dragline, having a 235-ft. boom and a 26-cu. yd. bucket, is the largest used in the phosphate industry; it operates at the Noralyn mine.

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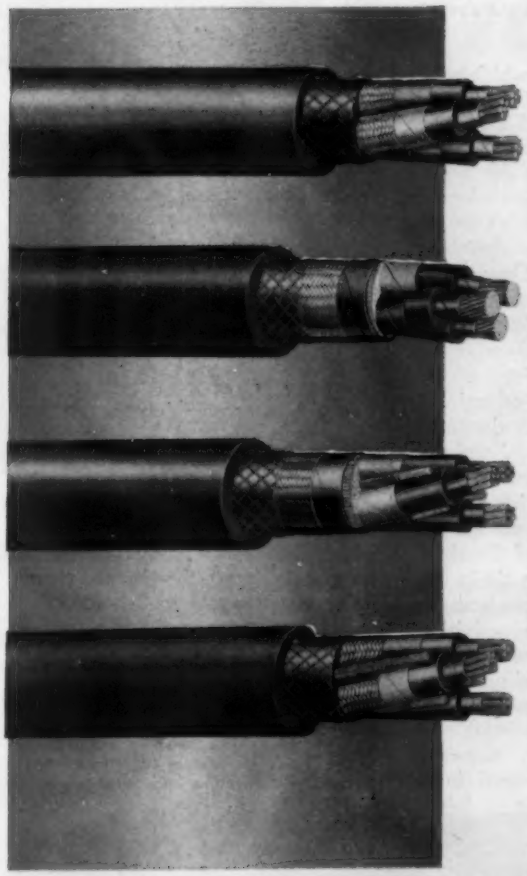

U. S. Royal SH-A Cables consist of three or four flexible coated annealed copper conductors covered with a semi-conducting tape. Each conductor is insulated with U. S Uskorona-1 oil base compound, and covered with colored tapes and a braided coated copper shield. The conductors are then cabled and covered with a reinforced jacket of 60% black neoprene. The shielded braid over each insulated conductor eliminates corona cutting by static discharge through equalization of surface stresses.

SH-B cables consist of three or four flexible coated annealed copper conductors covered with a semi-conducting tape. Each conductor is insulated with U. S. Uskorona-1 oil base compound plus colored tapes. Conductors are then cabled with jute fillers, covered with a rubber-filled tape, a braided coated copper shield and reinforced 60% black neoprene jacket. The shielding braid protects the men handling the cable in the event of fault currents.

SH-C cables consist of three or four flexible coated annealed copper conductors covered with a semi-conducting tape. Each conductor is insulated with U. S. Uskorona-1 oil base compound and covered with a colored tape. The conductors are cabled with jute fillers and with the specified fabric-covered ground wires in the conductor interstices; then covered with a rubber-filled tape, braided coated copper shield and a reinforced 60% black neoprene jacket. Ground wires permit grounding of equipment and provide an adequate low-resistance path for short circuits, thus insuring circuit breaker operation. The grounded equipment provides protection to workmen under fault conditions.

SH-D cables consist of three or four flexible coated annealed copper conductors covered with a semi-conducting tape. Each conductor is insulated with U. S. Uskorona-1 oil base compound and covered with a colored tape and a braided coated copper shield. The conductors, together with fabric-covered grounding conductors, are cabled and covered with a reinforced black 60% neoprene jacket. The conductor shielding, when properly grounded, equalizes surface stresses and draws off all capacity charging currents, insuring safety in handling. An adequate low-resistance ground for the equipment is provided by the grounding conductors.

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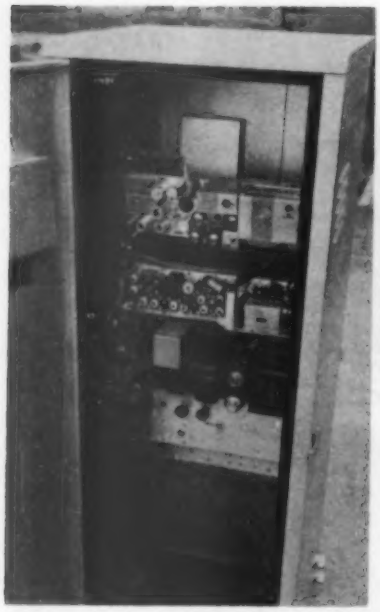


Above: A variety of radio maintenance equipment is used in routine checking of radio sets. These devices are located in the instrument office of the Noralyn plant.

Left: A closeup of the 120-watt base station transmitter, which consists of transmitting, receiving, and power supply units and a remote control panel.

trucks of the key operating personnel, as well as in the draglines. In the low-power system there are in use eight mobile 3-watt units (FMTU-22) and four 0.250-watt units (FHTU-1) or "walkie-talkies". All of the radio equipment mentioned above was manufactured by Motorola and is owned by the company.

Since the higher-power sets have a broadcasting range approximating 10 miles, these units are used throughout the entire phosphate area. The lower-power units, on the other hand, have a range of approximately one mile, and their use is necessarily restricted. The "walkie-talkies" are used by the surveying crew and dragline ground crews while the eight other low-power sets are used in the grinding and drying plant at Mulberry as an integral part of the production process, and at the mine for dragline-to-pit communication.

The main base station, which consists of transmitting and receiving units, a power supply, and a remote control panel, is located on the roof of the flotation building of the Noralyn plant. This location was selected primarily because Noralyn is centrally located with respect to International operations in Polk County.

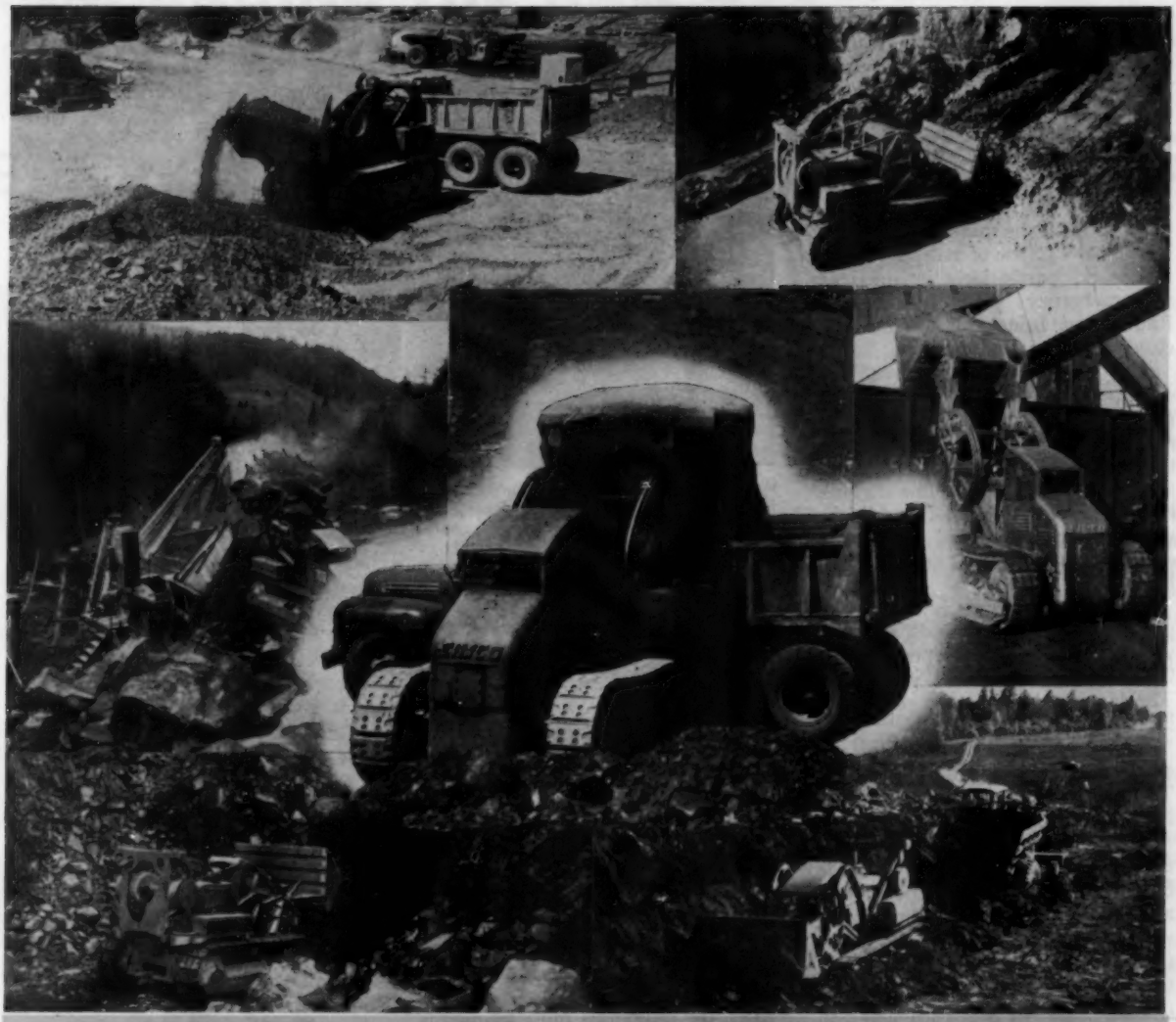
The four control points are also located at the Noralyn plant. Three are installed in the recently-constructed Service Center building, which serves as the nerve center of maintenance and repair activities throughout the company's Florida phosphate operations. The control units are located in the office of the instrument department, the trucking service department, and the office of the chief mechanic. Because of the tie-in between radio communications and the maintenance and repair activities, the choice of the location of the three control points was a logical one. The fourth control point is located in the Noralyn flotation plant.

As mentioned earlier, two-way radio communication is used in a number of ways by International, including repair, maintenance, certain production operations, and surveying. First and perhaps most important is in repair work. When breakdowns occur, particularly in the remote mining areas, maintenance personnel and repair parts can be called for immediately with radio, thereby eliminating costly delays. One outstanding example was cited during the writer's recent visit to the phosphate area. Following a small motor failure on one of the draglines, a repair truck was sent to the warehouse for a replacement. While the repair truck was enroute to the warehouse, it was discovered that the wrong size motor was requested. The truck was immediately contacted by radio, after which the proper motor was picked up and delivered, thereby preventing delay of perhaps 1 to 2 hours.

Because of the emphasis placed on down time, two-way radio sets are installed in a large number of trucks,

One of the floating crew trucks equipped with a two-way radio set. Radio expedites the floating crew's work of repairing and changing pipe lines.

J. L. Robison, mine superintendent of the Noralyn mine, uses two-way radio in his pickup truck to contact draglines, repair trucks, the main office and other points.



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including those used by maintenance superintendent, mechanics, electricians, service trucks, and other maintenance transportation units. In addition, the company's floating crew trucks are equipped with radio. It is the job of the floating crews to repair and change pipelines used in conveying the phosphate matrix pumped from the mines to the washing plant. The use of radio expedites this work, particularly in the case of emergency pipe breakdowns. Radio thus brings all of the jobs closer together.

The company's draglines are equipped with radio sets in order to permit instant contact between the dragline operator and the mining superintendent, thereby allowing the superintendent to direct the digging operations very readily. In addition, the radio has proved useful in expediting repair work on the draglines.

One of the draglines is pictured on page 60; it is a Bucyrus-Erie 1250B walking dragline, equipped with a 235-ft. boom and a 26-cu. yd. bucket. The largest in use in the phosphate industry, it is appropriately named "Super Scooper". Note the radio antenna on top of the dragline mast. This dragline is in service at the Noralyn mine.

Another of the draglines, "Tillie the Toiler", which is a Bucyrus-Erie 650B mounting a 175-ft. boom and a 17-cu. yd. bucket, is also equipped with low-power radio for communication between the dragline operator, the dragline groundman, and pit pump operators. Before the advent of the radio system, hand and light signals — and frequently messengers — were required to co-ordinate this important phase of the operation. This dragline also has an "intercom" system used by the dragline crew.

Perhaps the most interesting application of radio in the operating

Dave Anderson, instrument supervisor, and Bill Barbarawicz, electrical engineer, two key men in the International's radio operation. The radio set on the table, equipped with foam rubber padding, is to be mounted on one of the company's bulldozers at the Mulberry plant.

end is found at the drying and grinding plant at Mulberry, where the six 3-watt radio sets are used in the blending operation. One radio set is located on the drying floor, one in the tank house, and another in the wet-rock scale house, and the other three on Allis-Chalmers HD-19 tractor-bulldozers. The dozers work the storage piles adjacent to the drying plant, pushing up various grades and sizes of phosphate to a tunnel belt conveyor feeding the tanks or storage bins, which in turn feed the driers. Because various blends of phosphate are produced daily, the bulldozers must frequently move to different sections of the storage area and push up the different grades of material. By having direct contact between the tank house operator, drying floor foreman, and the bulldozers, this phase of the operation is streamlined considerably.

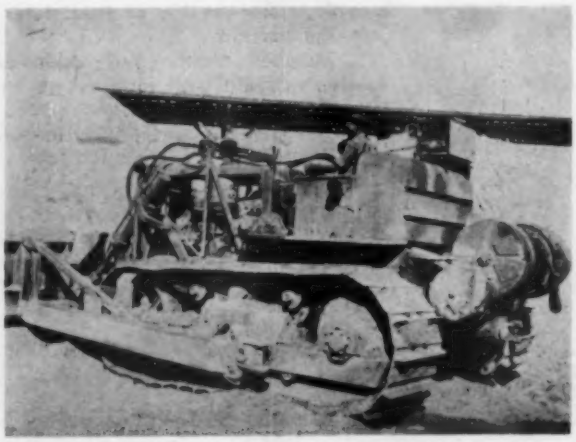
Operating mobile radio sets on the tractors presented a major problem at first, mainly due to the extreme vibrations of the tractor. Various methods to absorb the shock were devised, the most successful being sponge rubber padding placed at various points in the radio set. Through use of this type of padding, the vibration problem has been completely eliminated.

Surveying crews also use the two-way radio telephone ("walkie-talkies") to good advantage. With radios, the transitman and rodman maintain instant contact with each other. Prior to radio, the surveying party used hand signals, which were occasionally mistaken. This is easily understood when one realizes that much of the surveying work was done in swamps or wooded areas and that most transit shots were more than 1,200 feet. Often a mistaken hand signal would result in the transitman having to backtrack and reset his instrument in order to take a correct reading. Radio enables the surveying crew to transmit instructions accurately and thereby effects an efficient operation.

Summing up, it is seen that the extensive use of two-way radio in International's Florida phosphate operations has not only expedited repair and maintenance work but has also streamlined various operations. It has also served to integrate the four International plants and their multiple operations. Indicative of the success of radio communications is the fact that personnel using the radios say they would never want to be without this facility.

Major credit for International's adopting two-way radio for its Florida phosphate operation goes to Thomas W. Ware, vice-president in charge of engineering, who spearheaded the entire project.

Left: A.L. Scott, mill foreman at the Mulberry drying and grinding plant, using a 3-watt radio set to contact one of the bulldozer operators working at the stockpile area.



Right: The bulldozer operator is directed by radio to feed the proper grade of phosphate from the storage area to the tunnel belt conveyor feeding the drying plant. The radio set is mounted on shock-proof foam rubber padding.

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The new RF-230 is powered by the new INTERNATIONAL 212 hp. Royal Red Diamond 501 engine delivering 444 lb-ft torque at 1600 rpm. It has hydraulic full-power steering, 12-volt electrical system, other features. Engine and all components are precisely coordinated to assure maximum operating economy, minimum maintenance and long life.

This newest INTERNATIONAL is Tough-Job engineered like all INTERNATIONALS – has a surpassing measure of the performance, strength and stamina qualities that have made INTERNATIONAL the 6-wheel sales leader for 20 straight years. It is built to do big jobs, save big money. Get full facts from your INTERNATIONAL Dealer or Branch.

QUICK FACTS...

GVW rating, 60,000 lbs.

Wheelbase, 175 inches; optional wheelbases available.

Engine, INTERNATIONAL Royal Red Diamond 501, 4½-inch bore, 5¼-inch stroke, 501 cu. in. displacement. Max. hp., 212 at 3000 rpm. Max. torque, 444 lb-ft at 1600 rpm.

Frame, double, heat-treated alloy steel. Two 15,000 lb. capacity front tow hooks, standard.

Clutch, 15-inch single plate with vibration damper.

Transmission, direct-in-fifth main plus overdrive auxiliary.

Standard equipment includes hydraulic full-power steering, air brakes, 12-volt electrical system.

Optional equipment includes LPG fuel system, Comfo-Vision space saver cab for maximum front axle loading; high altitude engine equipment; tinted safety glass all around.

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International Harvester Builds **McCORMICK®** Farm Equipment and **FARMALL®** Tractors...Motor Trucks...Industrial Power...Refrigerators and Freezers

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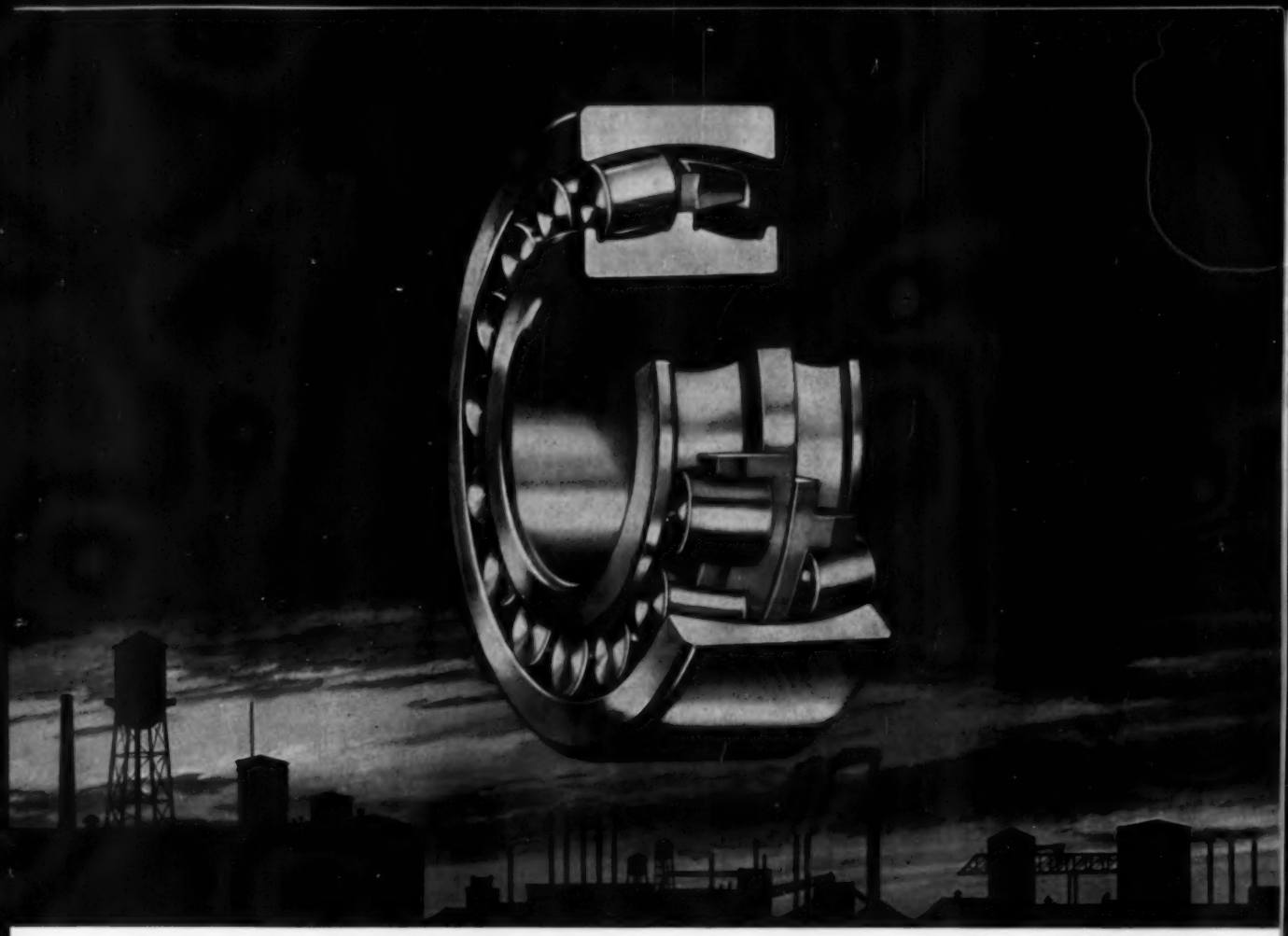
INTERNATIONAL® TRUCKS

"Standard of the Highway"



Why it pays to specify
TORRINGTON Spherical Roller Bearings

Uniform, close control of precision-ground contact surfaces—for even load distribution, maximum bearing life.

Accurate geometrical conformity between races and rollers—for ultimate capacity and performance.

Races and rollers heat treated according to the most advanced metallurgical procedures.

Machined, cast-bronze cages—one for each path of rollers—assure freedom of operation.

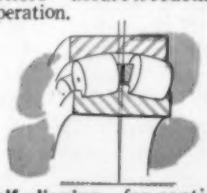
Integral center flange on inner race—to give positive radial and thrust stability—both essential to satisfactory performance.

Available from stock with either straight or tapered bore—for shaft or adapter mounting.

These are advantages that give you long, efficient, low-maintenance service in the toughest heavy-duty applications... **maximum value for your bearing dollar.** ***That's why it pays to specify TORRINGTON Spherical Roller Bearings.***

THE TORRINGTON COMPANY
South Bend 21, Ind. • Torrington, Conn.

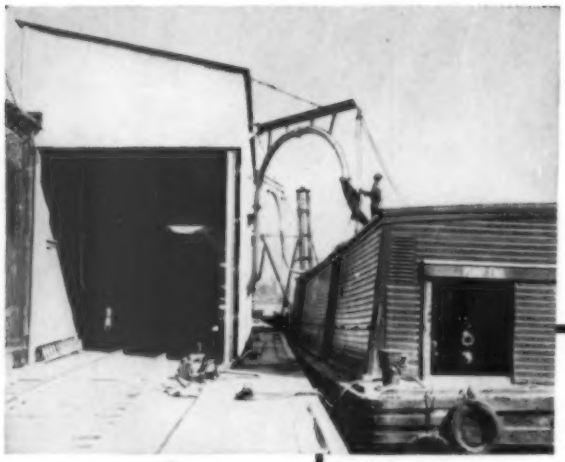
TORRINGTON SPHERICAL ROLLER **BEARINGS**



Self-aligning—for continuous, free-rolling service under shock loads and at sustained speeds.

Unit assembly—for easy, low cost handling.

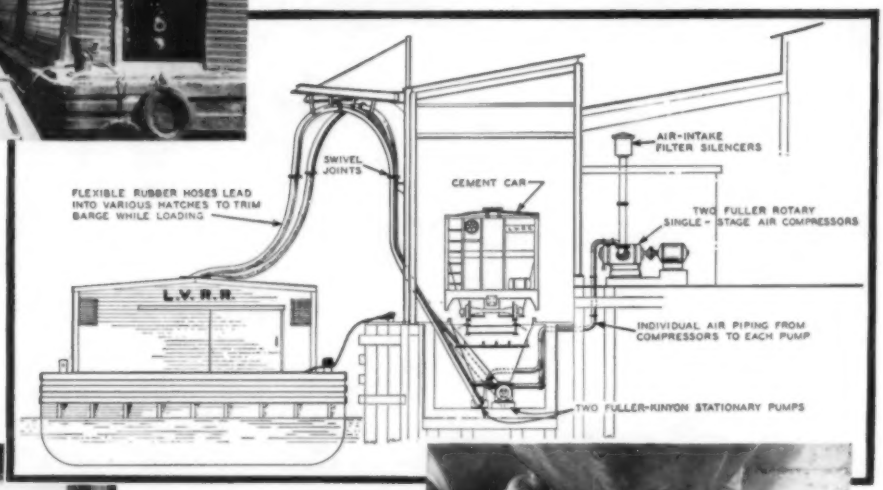
Spherical Roller • Tapered Roller • Cylindrical Roller • Needle • Ball • Needle Rollers



Hoses entering hatches of barge. Cement car in shed "spotted" over Fuller-Kinyon Pumps in pit. Fuller-Kinyon Unloader in doorway, end of barge.

Air does it . . .

SPEEDIER
CLEANER
MORE EFFICIENTLY


AIR-INTAKE FILTER SILENCERS
SWIVEL JOINTS
CEMENT CAR
FLEXIBLE RUBBER HOSES LEAD INTO VARIOUS HATCHES TO TRIM BARGE WHILE LOADING
TWO FULLER ROTARY SINGLE-STAGE AIR COMPRESSORS
L.V. R.R.
INDIVIDUAL AIR PIPING FROM COMPRESSORS TO EACH PUMP
TWO FULLER-KINYON STATIONARY PUMPS

Two Fuller-Kinyon Stationary Pumps in pit. Pumps convey to barge at rate of 900-1000 bbl. an hour.

Unloader behind bulkhead in end of barge. At destination bulkhead is removed and unloader is propelled into barge, unloads cargo to storage on shore.

FULLER-KINYON SYSTEM unloads cars . . . conveys to barges . . . unloads barges for Lehigh Valley Railroad

In order to reduce the overall cost and speed up handling of bulk-cement shipments at its Jersey City terminal, Lehigh Valley Railroad engineers installed the Fuller-Kinyon Conveying System. Fuller-Kinyon Stationary Pumps convey from cars to barge, and Fuller-Kinyon Remote-Control Unloaders convey from barge to storage at various points in New York harbor . . . speedy, efficient, time-saving handling from the time cars arrive until final delivery to the consumer.

The pumps for unloading from cars to barge, convey through two conveying lines at rate of 900 to 1000 barrels an hour. The unloader has a rated capacity of 150 barrels an hour. One man operates and controls this machine by means of a flexible electrical cable and hand-control switch . . . start and stop, to right or left, forward or backward, wherever cement is to be picked up in the barge.

Air for the Fuller-Kinyon Stationary Pumps is supplied by two Fuller Rotary Compressors, each having a capacity of 614 c.f.m., at 12-lb. pressure. These compressors are installed on the pier adjacent to the car-unloading station.

If you are interested in efficient handling of bulk cement, write for Bulletins FK-20C and FK-27, illustrating and describing cement handling with Fuller equipment.

P-155
1389

DRY MATERIAL CONVEYING SYSTEMS AND COOLERS—
COMPRESSORS AND VACUUM PUMPS—
FEEDERS AND ASSOCIATED EQUIPMENT

FULLER COMPANY, Catasauqua, Pa.
GENERAL AMERICAN TRANSPORTATION CORPORATION SUBSIDIARY
Chicago • San Francisco • Los Angeles • Seattle • Birmingham

"Sinclair TENOL has permitted remarkable performance!"

says Wayne Pressnell, President, Columbia Rock Products Corp., Columbia, Tenn.

Producing commercial stone and agricultural limestone in this 50' quarry is rough on the equipment of the Columbia Rock Products Corporation . . . *yet mechanical failures are rare.*

Mr. Pressnell writes, "We operate 11 diesel units including Euclid Trucks, Motor Patrol Graders, Bulldozers, Draglines and Shovels – all lubricated with Sinclair TENOL®. One Lorain Shovel, powered by Caterpillar engine has been credited with 5000 operating hours over a 2-year period without any mechanical failure. Another of our shovels has chalked up 20,000 operating hours over a 10-year period – *10,000 hours without overhaul.* Sinclair TENOL has certainly helped our equipment give us a remarkable performance record."

Mr. Pressnell's choice of Sinclair TENOL has helped slice off a large part from the maintenance costs of his company. Why not let TENOL do the same for you. Phone your local Sinclair Representative or write Sinclair Refining Company, 600 Fifth Avenue, New York 20, N.Y.

SINCLAIR TENOL

prolongs engine life

Dumptor hauls along trestles .

. . or tunnels

without turning

Shuttling back and forth between the loading unit and dump area, Koehring Dumptor travels round-trip without turning. It operates with equal ease in both directions on overhead trestles, in confined underground mines, on open-pit ledges and narrow haul roads. Dumptor gets this unique no-turn advantage through a constant-mesh transmission that gives the same 3-speed travel in either direction.

Every turn eliminated cuts 15 seconds off cycle time. This adds up to a substantial increase in yards hauled per hour. For example, by saving only 2 turns, time studies prove that Dumptor increases hourly yardage output more than 10% on an average 1,000-foot haul.

One-second gravity-dumping also maintains a high rate of production. To dump, operator trips body-release lever, and the 6-yard body instantly tilts 70°. One second later the load is out, and Dumptor is on its way back for the next load. There's no 15 to 25-second wait for slow-acting hydraulic or electric body hoists. What's more, gravity-dump never balks, never wears out.

To learn what these Dumptor advantages can mean in increased production and lower hauling costs on your work, call your Koehring distributor, or write for Dumptor® catalog.

KOEHRING COMPANY

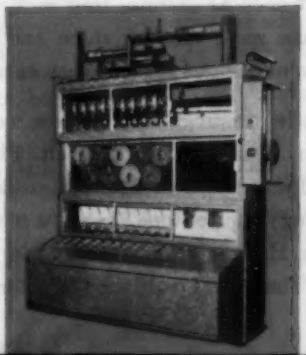
Milwaukee 16, Wisconsin

CK440 *Subsidiaries:* PARSONS • KWIK-MIX • JOHNSON

"Repeater" automatically re-batches any mix selection

At the turn of a dial and push of a button, this Johnson commercial transit-mix plant produces any one of 120 different size and type batches of aggregates and cement. It weighs out any combination of materials you select on the central dial-scale control panel . . . and automatically repeats any batch selections for a pre-determined number of times.

The electric-control, 120-mix-selector panel provides for concrete of various strengths in any combination of materials, in ½ to 2 cubic yard batches. For each size batch there are individual selections for 3 to 6-inch slumps. Dial system makes it easy to change from one mix selection to another. To get any size or type of batch, operator merely turns the selector dial, sets the "repeater", pushes the "start" button . . . and the plant weighs out fast, with pinpoint accuracy. During the batching cycle, a lock prevents accidental change of the mix selector.



Nine material weigh-dials on the control panel have individual pen-recorders. Exact weight of each batch is automatically graph-recorded. Johnson batching equipment consists of: six 5000-lb. aggregate batchers (two with automatic moisture-compensators) . . . a 3000-lb. cement batcher with dual fill valves for selecting 2 types of cement . . . a 2000-lb. water weigh-batcher, and a 5-lb. (80-oz.) air entraining admix batcher. All are fully automatic.

Whenever you plan a new plant . . . or want to modernize an existing set-up, look into the increased efficiency you can get with Johnson equipment. You'll find your Johnson distributor is at your service . . . ready to help at any time.

29

C. S. JOHNSON CO. CHAMPAIGN, ILLINOIS

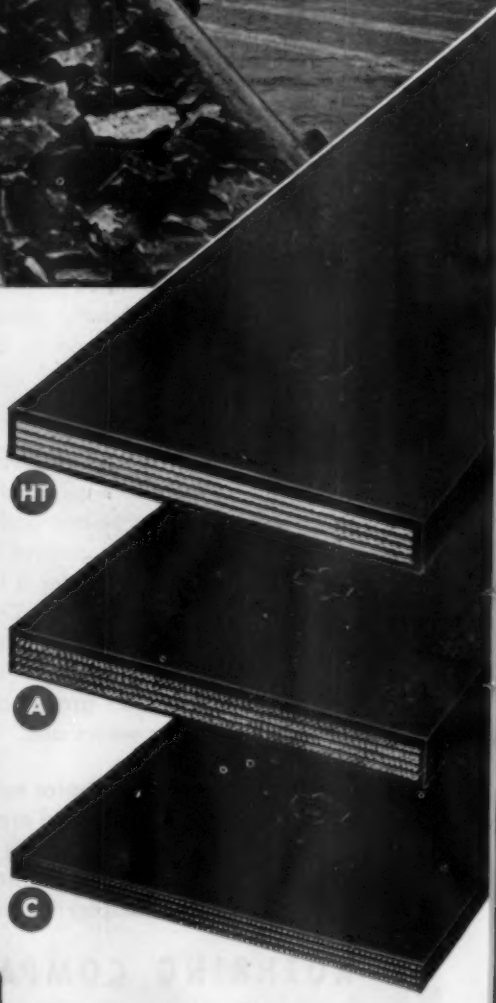
Koehring Subsidiary

Thermoid Conveyor Belting cuts handling costs in quarries

Thermoid
Industrial Rubber Products
Quality Value Service

There's a Thermoid Conveyor Belt designed to lower your handling costs on every quarry job. Here are three examples: **HT** For extremely abrasive materials such as granite, trap rock, flint rock, quartz ore; **A** For slag, lime rock, crushed stone and other highly abrasive materials; **C** For moderate abrasives such as sand, loam, soda, gravel.

Thermoid's exclusive impregnation process welds carcass and cover into an exceptionally strong, durable belt. Finest quality reinforcement and specially compounded rubber stocks assure long life . . . lower your handling costs per ton. There is a complete line of Thermoid Conveyor Belting, Hose and Multi-V Belts for every quarrying application. Call your Thermoid Distributor for information, or write direct.



Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

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Rubber Sheet Packings • Molded Products
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Report on Current Labor Developments

Battle Over Right-to-Work Laws

By S. HERBERT UNTERBERGER
S. Herbert Unterberger and Company
Industrial and Labor Economists
Washington, D. C. - Philadelphia, Pa.

HAVING embarrassed the Eisenhower Administration when he "jumped off the deep end" by telling the CIO convention that state right-to-work laws "do more harm than good", Labor Secretary Mitchell is now trying to shrug the whole matter off. He isn't recommending that Congress repeal the section of the Taft-Hartley Law which permits the operation of such laws. Despite the fact that the Congress is controlled by the Democrats, who are officially opposed to the Taft-Hartley Law, he does not think that this change can be secured.

The basis for this conclusion is clear from a listing of the 17 states which have such laws: Florida, which passed its law as long ago as 1944; Arizona, Arkansas, Georgia, Iowa, Nebraska, North Carolina, North Dakota, South Dakota, Tennessee, Texas, and Virginia, which passed their laws in 1947 right after the enactment of Taft-Hartley; Nevada, which passed its law in 1952; Alabama, 1953; and Louisiana, Mississippi, and South Carolina, which passed their laws last year.

The heavy concentration of these laws in Southern states whose Democratic senators and congressmen virtually control the Congress explains the Secretary of Labor's view that nothing could be done this year.

During this year 44 state legislatures are meeting. At least eight of them are scheduled to consider the adoption of legislation similar to their right-to-work laws. They are: California, Colorado, Kansas, Kentucky, Maryland, Missouri, Oklahoma, and Wisconsin. As the sessions proceed, others are likely to be added to the list.

What, exactly, do these laws say? Generally they are very short and simple statements. The wording of the applicable section of the Arkansas law is fairly typical. It states:

"No person shall be denied employment because of membership in or affiliation with or resignation from a labor union, or because of refusal to join or affiliate with a labor union; nor shall any corporation or individual or association of any kind enter into any contract, written or oral, to exclude from employment members of a labor union or persons who refuse to join a labor union, or because of resignation from a labor union; nor shall any person against his will be compelled to pay dues to any labor organization as a prerequisite to or condition of employment."

The essence of all these provisions is that contracts requiring union membership as a condition of employment—that is, contracts containing closed shop, union shop, or maintenance of membership clauses—are illegal.

Of special importance is the fact that establishments which are in no other way covered by the State labor relations law because their business is interstate and they are therefore covered by federal law are, nevertheless, affected by a "right-to-work" provision because of the special clause in the Taft-Hartley Act which contains this statement:

"Nothing in this Act shall be construed as authorizing the execution or application of agreements requiring membership in a labor organization as a condition of employment in any State or Territory in which such execution or application is prohibited by State or Territorial law."

It is easy to understand that these "right-to-work" provisions create special problems for labor unions and their officials. Because they clearly permit—perhaps, even encourage—employees to drop out of unions without penalty, they cut into dues collections and thus impair the union's financial strength. They make the work of organizing more difficult because it becomes necessary to sign up each employee individually. This means that the union officers must devote much of their energy to trying to get workers to join and stay in the union. If they are required to fight constantly just to preserve their foothold, they will have neither the time nor the inclination to consider any steps which might yield mutual benefit to both the employee and the union.

To employers, these provisions are not a completely unmixed blessing. Particularly, if they operate in one state which has such a provision and also in another which does not have such a provision, they are faced with the problem of administering a dual labor policy. This complicates the operation of the business. It also exposes the employer to charges of unequal treatment.

Furthermore, when a union is under continuous pressure to enlist members, it must always have issues to fight. If there are no serious grievances available, the union is almost under compulsion to create some. Union leaders know that they must keep things stirred up or else their membership will desert. Thus, a case can be made out that "right-to-work" provisions contribute to unstable labor relations, which are very expensive to the employer.

On the other hand, the unions are the first to admit—even insist—that these provisions have prevented unionization where it would otherwise certainly have occurred.

The big appeal of these provisions to the general public is that they conform with a certain elementary notion of freedom. There is something repugnant about being required to pay dues to a private organization, or to a union, for the privilege of holding a job. Although the comparison is not perfect, it has been compared with a requirement to join a particular church. To the opponents of "right-to-work" laws, this "ethical" argument has been the most difficult one to meet.

Primarily because there are merits on both sides of the issue, it will continue to be fought about for a long time—in all the state capitals and in Washington.

The proponents, which include many state and local businessmen's organization and Chambers of Commerce, as well as the National Association of Manufacturers, are concentrating their efforts primarily in those states where they think there is a chance of getting additional laws passed.

The opponents, primarily the labor unions with the moral support of the liberal wings of both parties, are required to deploy their forces over a much broader front. They will try to prevent the adoption of these provisions in additional states. They will try to have them repealed in states where they have already been adopted. And they will try to get the enabling provision in the Taft-Hartley Act eliminated.

Labor leaders are just as competent at counting noses in Congress as the Secretary of Labor, and so they are no more optimistic than he is about getting that law changed this year. However, they also know that laws are not changed in a day or even in a year. It took about 13 years and a favorable political climate to change the Wagner Act. There is speculation

(*Continued on page* 111)

N.S.G.A. Convention in Miami Successful from Every Standpoint

informative meetings, recreational advantages, and perfect weather form ideal combination

Officers of the National Sand and Gravel Association re-elected for 1955 include (left to right) John W. Murphy, president; E. Phil Gemmer, secretary-treasurer; and Roy E. (Buck) Weaver, treasurer.

another ON THE SPOT turnout

THE National Sand and Gravel Association and the affiliated National Ready Mixed Concrete Association on January 11 to 13, 1955, held highly successful joint conventions at Miami, Fla. It is believed that a new record for attendance was set for a non-exhibit year, and certainly more members than ever before brought their wives with them. The program was well up to past standards, and the weather and surroundings left nothing to be desired. This was the 39th annual convention of N.S.G.A. and the 25th for the N.R.M.C.A., which celebrated its silver anniversary. All meetings except those of directors, committees, etc., were held in Miami's new Municipal Auditorium, which has adequate facilities. Producers and manufacturers' representatives were located at several nearby hotels.

In order to make the best possible use of the time available there were many joint and simultaneous meetings of the two groups. At the joint sessions there were subjects of interest to both industries; at the simultaneous meetings each group covered subjects primarily of interest to its members. In this way it was possible to cover in three full days what otherwise might have required at least another day.

Several committees met on Saturday and Sunday preceding the convention, and the separate and joint directors' meetings were held on Monday, January 10. There was a joint luncheon on Tuesday; and on Wednesday night the N.R.M.C.A. Silver Anniversary Dinner was held, preceded by a reception and cocktail party. Over 1,000 people attended the dinner. The hospitality hours on Monday and Tuesday evenings were also well attended and gave producers and manufacturers an excellent opportunity for contacts.

The program covered a wide range of subjects of interest to those in attendance. There were, of course, the usual reports of association committees and officers. Other subjects covered at the N.S.G.A. meetings and the joint meetings included the following: construction outlook, growth of the cement industry, the highway program, tax planning, depreciation policies, labor costs and fringe benefits, specifications, testing, abrasive resistance, removal of deleterious particles, thermal compatibility, insurance program, welfare funds and area contracts, the industry wage pattern, labor agreements, land condemnation, public relations in the U. S. and in Great Britain, Washington report, and business prospects.

There was little time for outside activities or entertainment during the meeting days but evenings were open, and nearly everyone came a few days early or stayed over after the convention. All the many attractions in Miami, Miami Beach, and the surrounding area were patronized, including bathing, golf, deep sea fishing, jai alai, dog races, etc. Many took advantage of the pre-arranged trips to Cuba and other points in the Caribbean and South and Central America. There were no official plant tours, but many visited the plants in this area.

Left: A distinguished speaker at the Miami convention was Col. H. E. Peirce, Ballast, Sand and Allied Trades Association of Great Britain, who addressed the joint luncheon.

Right: E. N. Bernhardt, Warner Company, Philadelphia, Pa., who presented a paper on abrasion-resistant materials.

At this meeting the N.S.G.A. board of directors voted to form a public relations committee to handle zoning, land rehabilitation, and stream pollution problems. It was announced that simultaneous meetings of all association committees will be held in the fall of each year after the directors' meetings have been held. The *Driver's Manual,* patterned after the N.R.M.C.A. booklet of several years ago, will be ready soon.

Election of Officers At this convention all officers were unanimously re-elected for a second year. They are: John W. Murphy (Union Sand & Gravel Co.), president; Roy E. Weaver (Lincoln Sand & Gravel Co.), vice-president; and E. Phil Gemmer (Texas Construction Material Co.), secretary-treasurer. J. Paul Calhoun (Consolidated Gravel & Pipe Co.) was elected a member of the executive committee to replace Robert H. Baker (Dixie Sand & Gravel Co.), who resigned. John H. Law (Western Indiana Gravel Co.) was elected a director to replace Frank R. Morrow, who also resigned. Four directors-at-large re-elected were Robert S. Barneyback (Henry J. Kaiser Co.); Charles E. Brady (B. F. Hedrick Gravel & Sand Co.); Irving Crown (Material Service Corp.); and J. Paul Calhoun (Consolidated Gravel Co., Inc.). Ezra C. Knowlton (Utah Sand & Gravel Products Corp.) is the new director-at-large.

Convention Plans The places and dates of coming annual meetings of these associations were announced at the joint luncheon on Monday, January 10. The 1956 conventions and their joint machinery exposition will be held February 13-17 at the Conrad Hilton Hotel, Chicago. The 1957 convention will be February 11-14 at the Statler Hotel, Los Angeles. The 1959 convention will be February 15-19 at the Roosevelt Hotel, New Orleans, La. No decision has yet been made on the 1958 convention and exposition, but tentative reservations have been made at the Conrad Hilton in Chicago for February 9-14. New York is also under consideration because of the new public auditorium being built there. The final decision will be made at the next board meeting.

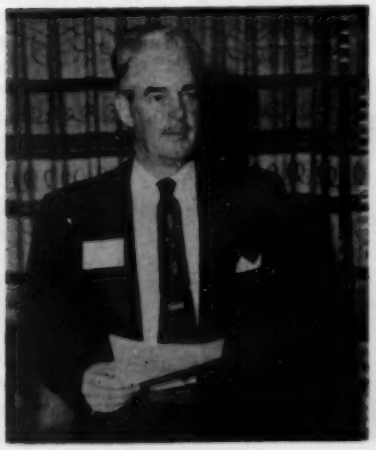
Frank J. Rooney, Frank J. Rooney, Inc., Miami, Fla., spoke on the construction outlook for 1955.

The 1955 semi-annual meetings of the boards of directors are to be held September 25-29 at The Homestead, Hot Springs, Va. No decision has been made for 1956 or subsequent years, but tentative reservations for October 1-3, 1956 have been made at the Lake Placid Club, Lake Placid, N. Y.

Manufacturers Division The Manufacturers Division of the National Sand and Gravel Association, held its annual luncheon meeting on Wednesday, January 12. Executive Secretary Vincent P. Ahearn, President John W. Murphy of N.S.G.A., and President-elect Louis C. Schilling of N.R.M.C.A. briefly discussed the present meeting and the coming conventions and machinery exposition in Chicago. Robert P. McKendrick (Blaw-Knox Co.), was re-elected chairman of the Division. After reviewing the division's activities during the past year, he expressed pleasure at the effectiveness of the plan of locating manufacturers in two adjacent hotels in Miami and providing producers with advance lists of their locations. The use of a third color badge for distributors was also a big help. It was decided at the luncheon to survey the division members for opinions concerning an inside *vs* an outside show for 1958.

Luncheon Speaker The joint luncheon of the two associations was held on the opening day with Robert C. Collins (Warner Co.), N.R.M.C.A. retiring president, as presiding officer. He introduced the guest of honor, H. E. Peirce, O.B.E., J.P., chairman of the Ballast, Sand and Allied Trades Association of Great Britain. He is a magistrate, a wartime commander of defense for a part of London, a noted cricketeer, a founding member of his association, and managing director of Hall & Co. Ltd.

Mr. Peirce urged closer relationship and better understanding between these two countries which have so much in common. He compared the position of the United States as the leading nation and creditor with that which Great Britain held for about 100 years. No one, he said, loved the Britons and everyone criticized them. He also described the bloodless revolution in the British Commonwealth which has resulted in self-government for most former possessions, a setup which is more realistic than would have been a continuation of the Empire. According to Mr. Peirce, these two nations must continue to guide the rest of the world and set it an example.



Left: R. P. McKenrick, Blaw-Knox Company, Pittsburgh, who was re-elected chairman of the N.S.G.A. Manufacturers Division.

Right: D. L. Bloem, N.R.M.C.A., Washington, D. C.; C. G. Cooley, Cooley Gravel Co., Denver, Colo.; W. H. Muirhead, Ross Island Sand and Gravel Co., Portland, Oreg.; and Wyatt B. Hodges, R. H. Wright & Son., Fort Lauderdale, Fla.

Carl E. Hanson, Diamond Iron Works, and Jesse D. Kaufman, Pacific Coast Aggregates. Mr. Kaufman accepted the Class A safety trophy for his firm's Eliot No. 104 plant.

After 36 years, he said, Russia has not yet been able to meet its own needs or those of its satellite nations.

President's Address In his welcoming address on the first day of the convention, John W. Murphy (Union Sand & Gravel Co.), president of the association, briefly outlined the important developments affecting the industry and the work done by the association during the last year. That year, he said, was a prosperous one for the industry, and there is an even better one ahead. The association now has the largest membership in its history (251 active members) and represents 65 to 70 percent of the total commercial aggregate production. The aim, however, should be for 100 percent representation—not for the added income, but for the added weight this gives the association in Washington as the representative and spokesman for a major industry.

Mr. Murphy mentioned the excellent work being done by the executive and technical branches of the association and their heads, Vincent P. Ahearn and Stanton Walker. He also lauded their assistants, Kenneth E. Tobin Jr. and Delmar L. Bloem, who are doing some excellent work. The quarterly wage survey conducted by the association, said Mr. Murphy, makes it unnecessary for any member company ever to enter labor negotiations at a disadvantage. The reviewing of current wage contracts is another important service. In nine years no union has requested any changes in clauses suggested. He also mentioned the regional meetings on tax problems and cost accounting, the safety contest, the joint group health and accident insurance program, the new drivers' manual, and other services.

The need for good public relations was also stressed. The sand-and-gravel industry, said Mr. Murphy, is not the most desirable neighbor, particularly where an operation adjoins a residential neighborhood. Even after an operation moves away, its results linger on, and this is the reason why the industry has been hit so hard by zoning and other public authorities. According to Mr. Murphy, there are solutions for these problems including planting, fencing, dust control, and noise control. Through long-range planning, worked-out deposits can be made usable to future generations, and safety programs can also improve a company's status in its community. It also helps, said Mr. Murphy, to point out what happens to building costs when sand and gravel must be shipped in from long distances.

Safety Contest A feature of the annual convention is always the awarding of the *Rock Products* safety trophies to the winners of the association's safety contest. The winners of the 1954 contest were: Class A—(more than 100,000 man-hours) Pacific Coast Aggregates, Inc., Eliot No. 104 plant, San Francisco, Calif.; Class B—(50,000-100,000 man-hours) Hurst Gravel Company, Quigley Plant, Fort Worth, Texas; and Class C—(less than 50,000 man-hours) Lyman-Richey Sand & Gravel Corporation, No. 7A Plant, Omaha, Nebr.

The Class A award was accepted for Pacific Coast Aggregates, Inc., by J. D. Kaufman, operating manager of the winning plant, which was also the winner in its class in 1952. He reiterated what was then stated, that good housekeeping is still the most important factor in safety, and he assured his listeners that this plant is always kept in the condition it was in when an inspection tour was made by those attending the convention in San Francisco in 1953. Mr. Kaufman emphasized the importance of checking each case with a doctor, not only for the sake of the individual but also to be sure that it is actually a lost-time accident. It sometimes develops that the trouble is actually an ailment or a recurrence of a previous injury, neither of which should count against the plant's safety record.

The Class B award was accepted for the Hurst Gravel Co. by C. E. Marshall, general manager. He opened by giving much credit to W. Ray Thomas, production manager of the Quigley plant, for this and previous awards. He emphasized that a safety program requires the working interest and attention of top management. It is then a simple

C. E. Marshall and George Miehaus, both of the Fort Worth Sand and Gravel Co., Fort Worth, Tex., posing with the Rock Products safety trophy won in Class B competition by the Quigley plant.

matter to sell safety to the employees. Features of this company's program are regular safety meetings (open forums), bulletin boards, etc. A step which was most beneficial was the employment of a safety engineer. Such engineers are available part time from insurance companies, and their employment pays off in reduced rates.

The Class C award was accepted by Harold Koop, safety director for the Lyman-Richey Sand & Gravel Corp. He said that safety must become a habit before a safety program can be a success. This plan, he said, also won the award for the small plant group in 1951. In 1933 the company was informed by the insurance carriers that, due to the unfavorable accident experience—72 lost-time accidents in 24 months, for all of its plants—its insurance was being cancelled. The only alternative was to set up its own insurance, and this was done.

At the same time an organized safety program was established. A physical examination was required of each employee, application was made for membership in the National Safety Council, a safety director was selected from the plant foremen, a plant safety inspection was made, hazards were corrected, bulletin boards were installed, monthly safety meetings and plant inspections were instituted, and many other steps were taken. A tremendous drop in accidents was immediately experienced, and in 1943 the former insurance carriers voluntarily took over again on a retrospective payment plan basis which has resulted in substantial savings each year. In closing, Mr. Koop said that the goal is a perfect record for all the company's 11 plants and its truck garage and repair shop. In 1949, 1951, and 1954, he said,

there was only one lost-time accident for all operations and none at the production plants.

Ahearn's Report In his annual report to the two associations Vincent P. Ahearn, executive secretary, mentioned the record volume of construction in 1954 and the prospects for a new record in 1955. The planned expansion of the highway program means good business for both industries for several years to come. Production of sand and gravel in 1954 was estimated at 479,062,356 tons, valued at $388,722,636. Ready-mixed concrete output can only be guessed at, but it was also at a record level. The cement supply in 1954, according to Mr. Ahearn, was generally equivalent to the demand, but there were shortages in some areas.

Mr. Ahearn referred to the fact that ready-mixed concrete is now also free from renegotiation. He also mentioned recent developments with respect to percentage depletion, industrial radio, merchandising, employer-employee relations, safety, workmen's compensation, etc. Prospects for 1955 are good, but increased competition has already started price wars, especially in the ready-mix industry, and these could become serious. Good management, he declared, is essential to survival under such conditions. Both associations are in excellent financial condition, and their active memberships—251 for N.S.G.A. and 637 for N.R.M.C.A.—are at record levels.

Walker's Report Stanton Walker, engineering director of both associations, gave his thirtieth report to N.S.G.A. and his twenty-fifth to N.R.M.C.A.

He began by describing the excellent staff and the laboratory facilities which provide much important information for members, and the many other ways in which his department furthers the interests of the two industries. Listeners were referred for detailed information to the association publications, including the Technical Information Letters. Lectures at local meetings and various Short Courses, including their own, give the staff opportunity to reach more producers.

The research work done during the year was briefly summarized by Mr. Walker. He mentioned the work which is continuing on air-entraining admixtures, soft particles, comparison of different freezing and thawing tests, characteristics of cements, flexral strength, aggregate specifications, plastic shrinkage, testing procedures, etc. Future laboratory work, he said, has a way of taking care of itself by trying to meet the demands. A copy of his full report has been sent to every member of both associations. Attached to the report is a summary of each of the 48 major items of research conducted during the last year.

In closing, Mr. Walker mentioned the impressive list of technical committees and societies in which he and his assistant, Delmar J. Bloem, represent these industries. Included are various committees of the American Society for Testing Materials, the American Concrete Institute, the highway Research Board, the American Railway Engineering Assn., the American Institute of Mining and Metallurgical Engineers, the American Public Works Assn., and the American Standards Assn.

Washington Report The annual report on the Washington scene by Vincent P. Ahearn, executive secretary of both associations, has become a must. The most important political development of 1954, in his opinion, was the shifting of the balance of power in the November elections. He pointed out that the Democrats have won control by a narrow margin in the House and in the Senate and also in the number of state governors. The main reasons for this shift, he said, were the rise in unemployment and the drop in agricultural prices but the election as a whole showed no real trend in public opinion. He also believes that President Eisenhower's popularity has not been affected and that he can be re-elected if that is what he wants. If he does not run, Mr. Ahearn added, the Republicans will have difficulty finding another candidate with a chance to win; the Democrats, on the ohter hand, have a number of good possibilities.

Business Prospects The panel discussion of business prospects for 1955 brought out the fact that in most sections 1954 was a record year for both the sand-and-gravel and ready-mix industries, and 1955 is expected to be as good if not better. According to E. Phil Gemmer, who presided at this meeting, these reports really give producers a plan for the future.

Texas — Business in 1954 was about 25 percent over 1953 in south Texas, but profits lagged due to overproduction in this area. In north Texas there was little change from 1953 until the last quarter, when there was a sharp rise. Business for both industries is expected to be up in 1955, with several more good years to follow.

Alabama — Both production and sales of sand and gravel and concrete were good in 1954, and prospects for 1955 are excellent for the entire Southeast.

Florida — The entire state of Florida had a good year, and in the Jacksonville area demand has increased 100 percent since 1950. The chief cause for concern is the fact that with this steady growth in business labor has become accustomed to regular wage boosts and might expect further increases even if business falls off.

North and **South Carolina** — In this area demand was down 15 to 20 percent in 1954, largely due to a drop in highway and military construction. As a result, sharp competition developed and prices dropped. An increasing demand is expected in 1955, which may reach the 1953 record level.

Pennsylvania and **New Jersey** — Construction volume set new records

W. J. Steiner, Steiner Sand & Gravel Co., West Milton, Ohio; J. E. Martin, Enon Sand & Gravel Co., Enon, Ohio; and C. L. Clarke, executive secretary, Ohio Sand & Gravel Assn.

Richard K. Humphries, Pacific Coast Aggregates, Inc., San Francisco, who discussed governmental land condemnation policies.

in 1954, and 1955 is expected to be even better. In Pennsylvania construction was up 20 percent. There was a cement shortage from May through October, but an adequate supply seems assured for 1955.

New York — 1954 was a good year in eastern New York, in spite of a 2,250,000-bbl. cement strike and hurricanes Carol, Edna, and Hazel which did considerable damage to sand-and- gravel and ready-mix plants. A record year is expected in 1955, with an increase in all types of construction. One of the big items is $350,000,000 for mental hospitals. The only possible trouble would be from labor in the cement industry, as present contracts expire early in the year.

Ohio — Ohio as a whole had a good year; with volume and profits up in almost all sections and with a few exceptions 1955 will also be good. Profits were up 3 percent in the Cleveland area, 4 percent in Youngstown, 10 percent in Columbus, 14 percent in Akron and 20 percent in the Wilmington area. In Springfield volume was down 8 percent, but 1955 is expected to be back to the 1953 record. In the Hamilton area business was good, but rising costs cut into profits; and late in the summer cement had to be rationed to customers. The Springfield area also had a cement shortage and more shortages are expected in 1955.

Indiana — In the Fort Wayne area the construction volume was up 15 percent, and the toll highways being built or soon to be built are expected to set a new record in 1955. The chief problem in this area for several years will be cement supply.

Minnesota — 1954 was a good year for both sand and gravel and ready-mix, but profits were down due to increasing competition and the increased cost of cement which could not be passed on to customers. Even better demand is expected in 1955; cement supply is the main problem.

Nebraska — In spite of the low farm income, demand and profits held their own in 1954. Demand is expected to increase about 5 percent in 1955 and about 10 percent in the Omaha area. A cement shortage is expected late in the year.

California — In northern California business was good in some areas which had large construction projects but not so good in others. On the whole, business was up about 10 percent and profits 5 percent. In Los Angeles County, construction set a new record, and 1955 is expected to be even better. The only problem was a cement shortage.

CONSTRUCTION, CEMENT SUPPLY, AND HIGHWAYS

Construction Outlook At a joint session of the two associations, three papers on subjects of national importance were given by experts in their representative fields. Frank J. Rooney, president of a Florida contracting firm and vice-president of the Associated General Contractors of America, discussed *The Construction Outlook for 1955.* He said that the construction industry is expecting to reach a record $55,000,000,000-year in 1955, which will top the previous record of 1954 by more than $2,000,000,000. $40,000,000,000 will represent new construction, the remainder being for maintenance and repair work (and, he added, this amount does not include President Eisenhower's proposed highway program). Factors contributing to the optimistic outlook, he pointed out, include the nation's rapidly growing population (growth of 2,700,000 people per year), the movement to the suburbs, and more liberal credit terms for construction financing.

However, in spite of the record volume, Mr. Rooney expects competition to be keener in 1955; and with labor costs rising another 5 percent, he predicted bids to be lower.

Cement Industry An informative paper entitled *Twenty-Five Years of Post War Growth for the Cement Industry* was given by Joseph S. Young, president, Lehigh Portland Cement Co., Allentown, Pa.

Joseph S. Young, Lehigh Portland Cement Co., Allentown, Pa., who discussed the growth of the cement industry.

According to Mr. Young, the nation's cement industry, which has been growing steadily since the end of World War II (capacity has increased by 54,000,000 bbl.) will continue to expand at an accelerated pace for years to come. The cement industry is bullish on the future and in an expansion mood, he said, and accordingly it is reasonable to expect that by 1970 annual cement consumption in the United States will have been increased over present figures by approximately 50,000,000 bbl., or a gain of 20 percent, thus reaching an all-time high of 320,-000,000 bbl.

This forecast, he said, is based in part on the likelihood of increased demand stemming from the continuing growth of the country's population, which can be expected to approach 200,000,000 by 1970. He also emphasized that, since 1939, cement has been used in new construction in proportionately greater amounts than other building materials. (A 116 percent rise for cement, compared to 66 percent for other materials.)

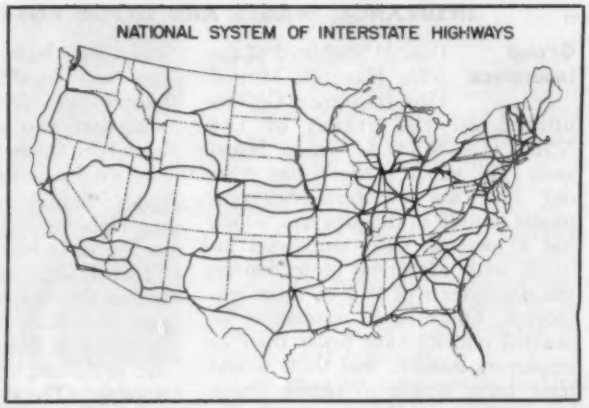
Eisenhower's Grand Plan One of the highlights of the Miami convention was an excellently prepared report by Ezra C. Knowlton on *President Eisenhower's Highway Program—A Most Important Milestone in the Development of Our Nation's Highways.* Mr. Knowlton pointed out that in order to overcome the very serious highway deficiencies of today, the President in July of last year proposed a four point highway program involving a $50,-000,000,000 additional expenditure during the next ten years. The program included:

1. A grand plan for the consistent development of a safe- integrated highway system connecting every part of our nation's highways — municipal, rural, national, and local.
2. Setting up financing arrangements based upon self liquidation wherever possible, through tolls, increased motor vehicle revenue, and Federal Aid.
3. Continuation of the present effective co-operation between the States and the Federal Government in the administration and prosecution of the augmented highway programs.
4. Inauguration of a program initiated by the Federal Government with state co-operation for the modern development of the important Inter-State System of 38,000 miles, the government to advance funds or guarantee obligations of states or other local units of government where necessary.

Since that announcement, a Governors' Committee and an Advisory Committee (headed by General Lucius D. Clay) have studied the orig-

Ezra C. Knowlton, Utah Sand and Gravel Products Corp., Salt Lake City, who discussed the President's highway program.

This map and the two graphs below were used to illustrate Ezra Knowlton's talk on President Eisenhower's proposed highway program.

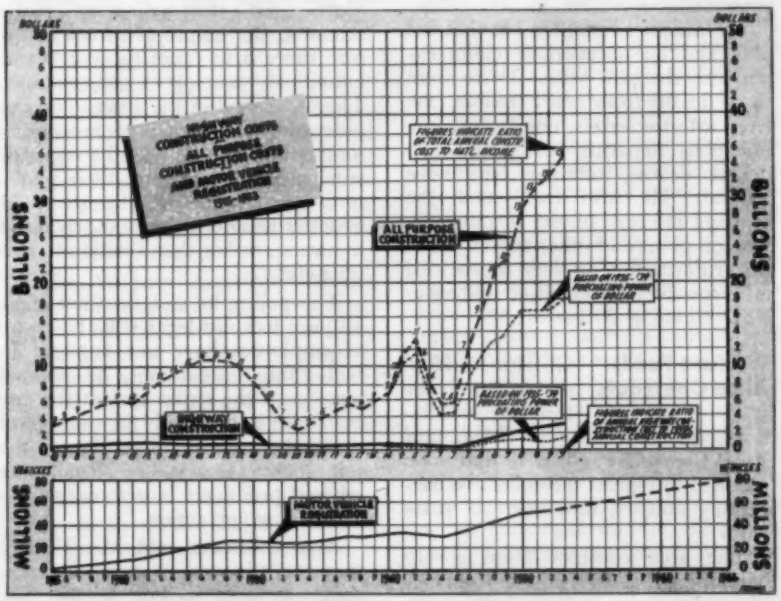


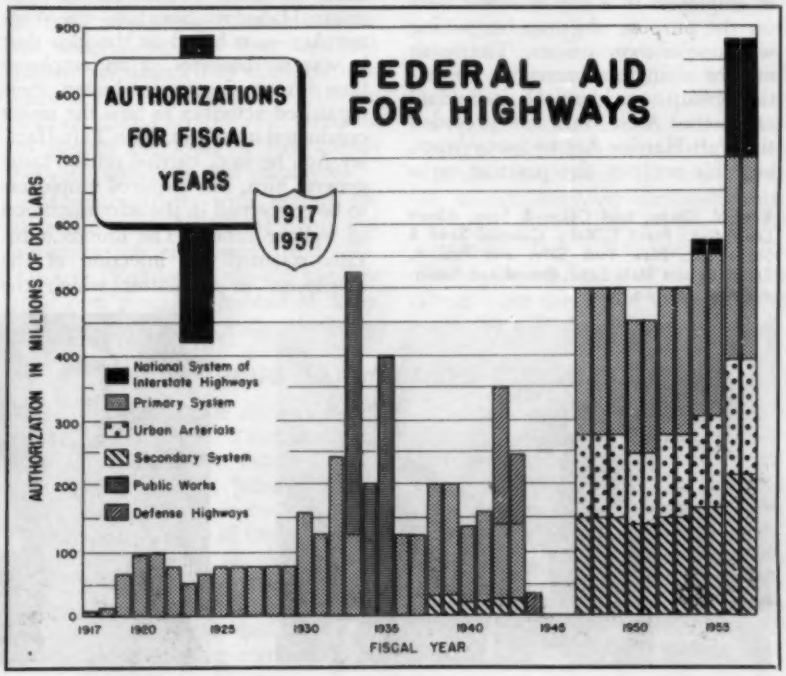
inal proposal, each group coming up with valuable modifications and further recommendations. Based upon these committee reports, signs everywhere point to the success of the program, Mr. Knowlton stated.

In discussing the ability of the nation's economy to adjust to the stepped-up highway program, the speaker referred to statistical comparisons of highway construction volume to total annual construction volume (the present ratio is about 9 percent), pointing out that highway construction can be stepped up without throwing a long established relation out of balance. (See graph on this page). As for availability of construction materials, heavy equipment, manpower and steel, the speaker stated that these items are in plentiful supply, and that the necessary expansion can be easily provided by contractors. Cement supply may be short in certain sections, but the cement industry is expanding at rapid rates to accommodate an augmented construction program.

On the other hand, Mr. Knowlton pointed out, the sand-and-gravel industry is facing a serious problem of the approaching exhaustion of the favorably-located raw material deposits; the problem is not one of plant production capacity, he added. The "exhaustion" is partly natural, but it is also accounted for by the increasingly burdensome restrictions and zoning regulations forced on producers, particularly in metropolitan areas. Because of these facts, it is inevitable that higher production and transportation costs will result, he stated. For this reason the speaker pointed to the need for a greater percentage depletion allowance.

In concluding, Mr. Knowlton stated that President Eisenhower's proposal could well be the most important contribution to the nation's highways made by any president since Jefferson signed the first Federal Aid Road Act 150 years ago.





INSURANCE, WAGES AND LABOR AGREEMENTS

Group Insurance Donald Shepherd of the John Hancock Mutual Life Insurance Co. reported on the status of the N.R.M.C.A.-N.S.G.A. Group Insurance Plan, which is nearly two years old. There are now 46 member companies insured in the program, which has a total of 1,463 employees insured, with additional protection on the dependents of 942 of these employees. Of these 46 companies, he pointed out, 29 have fewer than 25 employees insured, and these would have been unable to obtain group insurance except for the association program.

Mr. Shepherd pointed out that the plan had an unfavorable claim experience the past year. There were three deaths from heart trouble, one from arteriosclerosis, one from acute infectious hepatitis, and four accidental deaths, totaling far above normal. He also mentioned the growing interest among members in pension plans and other special benefits. Information on these is provided in a special booklet, *How Strong is Your Chain of Protection?*

Welfare Funds-Area Contracts Charles A. Horsky, counsel for the two associations, discussed *Welfare Funds and Area Contracts.* He said that it is planned to reprint the collective bargaining booklet, now over six years old.

The area contract plan (group bargaining) is the joining together of employers in a city or larger area for the purpose of group bargaining with one or more unions. The result may be a single contract for the entire group or identical individual contracts. Area contracts preceded the Taft-Hartley Act by many years, but this act put the practice on a sound legal basis. In spite of the success and legal soundness of area bargaining, however, Mr. Horsky said that two unsuccessful attacks have been made on it in recent years, one within the last few months.

Mr. Horsky quoted the edict of the National Labor Relations Board in the most recent case, as follows: "The Union's action represents a technique of exerting economic pressure to atomize the employer solidarity which is the fundamental aim of the multi-employer bargaining relationship. The calculated purpose of maintaining a strike against one employer and threatening to strike others in the employer group at future times is to cause successive and individual employer capitulations. Therefore, and in the absence of any independent evidence of anti-union motivation, we find that the respondents' action in shutting their plants until termination of the strike at Frontier was defensive and privileged in nature, rather than retaliatory and unlawful."

This policy, he said, does not make all joint lockouts legal. "If the group of employees have not engaged in real group bargainings, he pointed out, "or if the strike against the one employer is not really in support of demands made on all employees, the joint lockout may still be illegal." He advised producers to get counsel before taking any action.

Area contracts, said Mr. Horsky, may result in area or group commitments to joint welfare funds. The original labor relations act—the Wagner Act—was based on the idea that it was no business of an employer how his employees conducted their organized activities or how the union conducted its affairs. The Taft-Hartley Act, he said, carried on the same general idea, but required employers to be concerned in the administration of welfare funds. The unions naturally resented the injection of the employers in a matter which the unions had over the years come to think was none of the employers' concern.

This, said Mr. Horsky, was the atmosphere in which the welfare funds grew, at first slowly but at a spectacular rate in recent years. These funds are now so numerous that in 17 major labor market areas about 95 percent of all workers are covered by some type of welfare or pension program.

Mr. Horsky emphasized that employers can not remain indifferent to union abuses of trust funds. An employer is responsible for selecting employer trustees and if any officer of his company is a trustee there is a direct liability, with serious penalties for failure to meet the responsibilities involved. There is also, he pointed out, the equally important moral responsibility to the widows and orphans, the injured and the sick, those too old to work, and the others for whom these funds are intended. Pending passage of legislation for a clear-cut program by Congress, Mr. Horsky said that it is every employer's duty to find out about the administration of welfare funds in his area and to report any irregularities. If the problem remains unsolved, he warned, there will almost certainly be greater government intervention, and probably ultimate federal administration.

Wage Pattern Kenneth E. Tobin Jr., assistant executive secretary of both associations, gave a summary of the wage pattern in 1954, based on a quarterly report from a representative group of producers. The A F of L teamsters union dominates these industries, many of the smaller companies negotiating with them for all employees. The reports showed wage increases for the year ranging from 15 up to 55 cents per hour in different areas. Only 6 of

Ken W. Olson, Emil Olson & Sons, Albert Lea, Minn.; Frank L. Kelly, Colonial Sand & Stone Inc., New York City; and Paul R. Smith, Empire State Sand, Gravel and Ready-mix Assn., Buffalo, N. Y.

Ralph C. Johnson, Simplicity Engineering Co.; Emmett Galloway, HarriSteel Products Co.; Wayne W. King, W. S. Tyler Co.; and Jack Selden, HarriSteel Products Co.

the 78 reporting had strikes, and only one was of more than 10 days' duration. In non-union areas the largest wage increase was 10 percent, and some areas had none.

According to Mr. Tobin, there is an increasing demand for more paid holidays and vacations with pay. Holiday agreements now range from 2 to 11 with the union trying to make 7 the minimum. Demands for paid vacations were made on a few of the reporting companies in 1954 on the basis of two weeks after the first year, and three weeks after 15 years. More and more companies are agreeing to a guaranteed work week. There have been some demands for a guaranteed annual wage, but no reporting company has yet agreed to this. The unions are expected to keep trying; and Mr. Tobin warned that when any one producer gives in, the pressure will increase on others.

In describing the various types of contracts in effect Mr. Tobin mentioned that about half of them expire early in the year and only about 30 percent in November or December when a strike would be least harmful. He warned that these industries must be kept entirely distinct from the construction industry, as they pay lower wages but provide much steadier employment, better working conditions and numerous additional benefits, such as vacations. In 1955 the unions are expected to ask for more pay, more benefits, and more and bigger pensions.

Writing Labor Agreements Vincent P. Ahearn, executive secretary of both associations, discussed *A Check List for Employers in Writing Labor Agreements.* He said that there is no such thing as a perfect labor agreement. Collective bargaining was described as an unrealistic term in dealing with many unions which think and talk in terms of demands on employers, backing up this attitude with threats, strikes, and boycotts. These unions also have little regard for the welfare of employees, most of whom are not members by choice.

It was pointed out, however, that there are many instances in these industries of amicable and pleasant relationships between management and labor. Contracts are renewed from year to year on a basis of mutual respect and understanding of each other's problems, giving the employee fair increases without forcing the company into a disadvantageous position in a competitive market. We have moved out of the jungle in our dealings with unions in this industry, said Mr. Ahearn. He also pointed out that from now on the laws of this country will encourage unions and require management to deal with them. This, he felt, would mean no retreat from the fundamental position taken in the Taft-Hartley Act but rather an attempt to eliminate any unfair practices.

Speakers at the joint session on taxes, and depreciation: John T. Sapienza, N.S.G.A. tax counsel; Paul J. Kramer, Buffalo Slag Co., Buffalo, N. Y.; and John W. Murphy, Union Sand and Gravel Co., Spokane, Wash.

The Wagner Act, Mr. Ahearn feels, was one-sided and it created distrust of the unions while erecting a wall between workers and employers. Some brave employers, however, refused to be alienated from their workers and convinced them that they must work together if the company were going to stay in business and the workers were to have jobs. This course was not illegal under the Wagner Act, he pointed out; but it took the Taft-Hartley Act to encourage employers to recapture the loyalty of their employees. Much more can be done along this line, and the unions are alarmed at this new attitude among employers. Mr. Ahearn believes that Congress will continue to protect the right of free speech between employer and employee.

Many contracts with unions are shameful surrenders of the rights and authority of employers, said Mr. Ahearn. Employers should prepare their own proposals instead of being put in the psychologically disadvantageous position of trying to get the unions to soften down their demands. The unions also like to engage in pattern bargaining, making up one contract for all employers with whom they deal. He emphasized that a contract made by one producer is not binding on another, and that the development and execution of a sound labor policy in any company is a function of the principal executive of the company. Again he urged members to use the services of the association in helping to make out good labor contracts.

All that an employer is required to do by law, said Mr. Ahearn, is to recognize the union as the exclusive bargaining representative in the matter of rates of pay, hours of work, and other conditions of employment set out in the agreement, for employees of the company who have elected the union to represent them. He also discussed the check-off, rates of pay, and hours of work. A provision of labor agreements which badly needs improvement is that concerning seniority. In these industries, he pointed out, promotion cannot be based on seniority alone although many existing contracts contain such provisions. Mr. Ahearn warned members not to specify in contracts that *any* disagreement will go to arbitration, only that differences regarding the specifications in contracts can go to arbitration if necessary. If there is to be arbitration, a single arbitrator or an impartial umpire should be used, as representatives of the two disagreeing parties would only confuse the issue.

In closing, Mr. Ahearn pointed out that there is a vast difference between accepting regulations imposed by law and letting unions tell us how to operate our businesses to the detriment of both workers and employers. He also emphasized the importance of sound employer-employee relationships, which must get year-round attention. It is not necessary to like unions, he admitted, in order to get along with them, but getting along with them is also an important job.

TAX PLANNING, LABOR COSTS, FRINGE BENEFITS

Tax Planning In his talk on *Tax Planning for Your Business Under the Internal Revenue Code of 1954,* John T. Sapienza, association tax counsel, discussed several facets of the new code which the producer should have in mind in tax planning. He said that tax planning is a good thing, and that the producer should study the tax picture before making commitments.

In discussing the status of percentage depletion, he said that the Treasury Department has as one of its topics for full examination in 1955 the taxation of minerals and mining companies; this may involve the re-examination of percentage depletion, exploration and development expenditures, and other important phases of this subject. That means watchful attention on the part of the producer.

H. Guy Campbell, Richard L. Campbell, and Robert F. Porter, all of the Harry T. Campbell Sons' Corp., Towson, Md., and Edward J. Nunan, Buffalo Slag Co., Buffalo, N. Y.

In elaborating on percentage depletion, he stated that the general scheme of the statute pertaining to sand and gravel is the same. Thus, sand and gravel takes 5 percent, the depletion allowance being based on the gross income of the property. There is still a limitation of 50 percent of taxable income. Taxpayers are still entitled to take the higher—cost or percentage depletion. No change has been made in the definition of "ordinary treatment processes" insofar as they affect sand and gravel.

A new percentage depletion provision, however, relates to aggregation of mineral interests, Mr. Sapienza pointed out. It provides that each taxpayer may elect to aggregate his separate mineral interests, whether located in the same tract of land or in noncontiguous tracts, provided that these interests constitute a part of all of one operating unit. But what constitutes an operating unit is not clear, he stated. It would probably apply to several deposits that are operated with one processing plant, with the same or interchangeable equipment, and with the same personnel, in an area that is not too large, he thought.

In explaining the new provision, the speaker cited an example of a producer having five separate deposits which are being operated as one unit. On the 1954 return the three alternatives are: (1) aggregate all five; (2) treat them all as separate properties for percentage depletion purposes; or (3) aggregate three and treat the other two as separate interests. However, you may not have more than one aggregation in each operating unit. If in some later year you should acquire a sixth mineral interest, in the year of acquisition you have a further election as to whether you should aggregate it with those you have already aggregated or whether you will treat it as a separate unit.

Mr. Sapienza emphasized, however, that it is not advantageous to exercise the election in every case. You have to consider whether over the long run it is better taxwise to treat separate units as one. Once the election to aggregate has been made, you must continue to treat those units as one until you get permission from the Treasury Department to change, he stated.

As an example, the speaker said, "Suppose you have a mineral interest with a high-cost basis and another with a zero basis. It may be to your interest in 1954 to aggregate the two, but in 1957 it may be to your disadvantage because at that time you may want to take cost depletion on the interest with the high basis and percentage depletion on the interest with the zero basis. If you have aggregated, you must continue taking either percentage depletion or cost depletion on the aggregate. You may not separate them without the prior consent of the Treasury Department. In addition, the total percentage depletion allowed on the aggregate is applied against the basis of the high cost interest. If you should later sell the interest with the high basis, the percentage depletion allowance will have reduced that basis, and the gain on the sale will be higher. You have to work this out for a period of years on your best guess as to what the future will hold.

"The obvious advantage in aggregating interests is in cases where the ceiling of 50 percent of taxable income applies to one interest but not to the other. In such cases you may be able to get a larger percentage depletion deduction if you aggregate. But there are disadvantages, and these should be considered carefully before the election is made."

In discussing depreciation, the speaker said that the new provisions on depreciation are among the most important in the 1954 Internal Revenue Code. They were put in for the purpose of encouraging modernization and expansion of plants and equipment. However, the new methods of depreciation which result in a faster recovery of your investment are not always going to be advantageous, he warned. A number of factors must be considered before a choice is made. For example, if low profit levels, or even losses are expected during the next few years, accelerated depreciation may do you little good. If a steady level of income is expected, even depreciation deduction may be best. On the other hand, he stated, accelerated depreciation may be best if expansion is planned, so that the funds can be returned as quickly as possible.

Depreciation Policies In his paper entitled *Application of the New Depreciation Policies to the Sand and Gravel and Ready-Mixed Concrete Industries*, John W. Murphy, Union Sand and Gravel Company, Spokane, Wash., first discussed the theory of depreciation and why it is so important to the two allied industries and second, the provisions of the new law affecting the industries. (He reported that the two associations now have a Committee on Depreciation.)

Mr. Murphy emphasized that there is no single problem in the two industries which directly involves more separate departments of the business than does the depreciation problem. It is of major concern for operations, purchasing, accounting, future planning, and the like.

He described depreciation as not only the wear and tear and physical deterioration of the assets, but also the economic forces, such as obsolescence, which cause a decrease in value. He also stated that the depreciation rate should reflect the useful life of the assets. Factors determining how much depreciation expense to charge include the following: (1) depreciation base, which is ordinarily cost, but may also include installation charges, freight, etc.; (2) residual or scrap value; and (3) estimated useful life.

The cost less the scrap value determines the total expense to charge to operations, and the estimated useful life gives the total period over which to make the charges.

Earlier, he said, the industry generally used the straightline method of recovering depreciation. Under the new tax laws there are new methods of depreciation which give the option of recovering a larger percentage of depreciation over the early years of the equipment's life. These include the declining balance method and the sum-of-the years'-digits method.

He added that these new meth-

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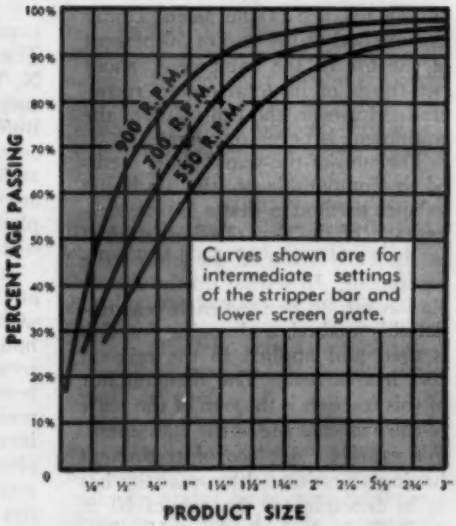

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P. W. Gifford, Gifford-Hill Co., Dallas, Tex.; Emmett Galloway, HarriSteel Products Co., New York, N. Y.; Roy Payne, Consolidated Stone and Sand Co.; Riverdale, N. J.; and Daniel J. Miller Jr., Portland Sand and Gravel Co., Portland, Pa.

ods of calculating allowable depreciation expense may be used only on tangible property (such as plants and equipment) which were *new* after January 1, 1954; used equipment will not be allowed under the new regulation.

Under the declining balance method of taking depreciation, 200 percent of the straight-line rate may be used (compared to 150 percent before). Thus, if a piece of machinery has an estimated life of ten years, the straight-line rate is 10 percent and the new declining balance rate is 20 percent. However, he said, this rate is applied on the original new cost of the equipment only the first year; each succeeding year the 20 percent is applied to the original cost less the depreciation which has been taken. The rate is thus applied to the declining balance of the asset. Under this method at the end of 50 percent of the life of the equipment, about two-thirds of its total cost is recovered. However, the full value of the equipment is never recovered.

The sum-of-the-years'-digits method is comparable to the declining balance method in that a greater percentage of the depreciation is taken in the early years of the life of the equipment. In setting up the depreciation rate to be used each year under this method, a changing fraction is used and applied to the original cost less salvage. The denominator of this fraction is the sum of the years of the expected life of the equipment. For example, a piece of equipment having an estimated ten-year life has as its denominator the sum of 10, 9, 8, 7, 6, 5, 4, 3, 2, 1 or 55. The numerator of the fraction is the expected remaining life of the property or equipment at the beginning of each year. In the case of an asset with a ten year life, the first year's depreciation allowance would be 10/55 of the cost less salvage, the second year's depreciation would be 9/55, and so on.

Under this method you will get slightly less depreciation the first year than under the declining balance method, but after that the two methods very nearly parallel each other with the more rapid book value reduction being on the side of the sum-of-the-years'-digits method.

However, in the case of building, plants, and equipment which have a life of approximately ten years or more, and where the asset itself is subject to only physical deterioration and is not subject to obsolescence or other unknown factors, the straight-line method of depreciation offers some advantages, Mr. Murphy said.

Labor Costs

Labor Costs and Fringe Benefits — How to Effectively Control Them, was a subject capably covered by Paul J. Kremer, The Buffalo Slag Co., Inc., Buffalo, N. Y. He described how his organization has controlled labor problems. Buffalo Slag Co. is composed of four corporations (with the general office at Buffalo), 16 plants (12 of which are unionized) and a fleet of 15 asphalt distributor trucks and 5 tractors with tank trailers.

At the outset he pointed out that no one can accurately measure worker income by weekly wages and hourly rates, because pensions, social security, unemployment insurance benefits, and sickness, hospital, and medical services have substantially increased both the wellbeing of employees and the costs of doing business. Vacations, holidays, sick leaves, rest periods, and many other times for which payments are made for time not worked have given workers increased compensation for each hour actually on the job.

Effective control has been accomplished by Buffalo Slag, he said, by setting up about four or five years ago a *Standard Payroll Procedure Manual* for each plant, whether large or small. This manual tells the plant clerk and/or plant superintendent exactly what to do in practically all circumstances, and because of it, the job, while complex, has become a fairly smooth operation. Because of the many controls which are written and spell out company policy, troubles with employees and union stewards are avoided. The manual itself is set up in chronological order and starts out with the employee punching in, goes through the various items that might come up, ending with the general office procedure after the payroll is received there for checking.

Mr. Kremer also discussed the weekly analyses of man-hours and labor costs, which his company has made for 20 years. These man-hour studies determine department costs of handling material and also production per man-hour. Data gathered for each department includes straight time hours, overtime hours, and double time hours.

The total amount of straight time hours and overtime hours for the entire plant is kept and expressed in percentage. By watching these costs and production of material per man hour, and particularly the percentage of overtime hours, the company has a fairly good control of he operations, he stated.

In discussing fringe benefits, Mr. Kremer stated that the *Standard Payroll Procedure Manual* is important in controlling this complex facet of business. One aspect of the control is a special "Reason for Leaving Employment" report which is filled out by the superintendent. This report is used for a number of different things; primarily, however, it is a report for the payroll department and the employee's history record. On the form the superintendent indicates whether the employee was laid off—quit—or discharged or for any other reason, and why. This is most important for a number of reasons.

For the history record it is important for future reference. It is important from the standpoint of the former employee claiming compensation insurance. More important, however, to the company, is the employee's eligibility for unemployment insurance.

According to Mr. Kremer, unemployment insurance claims are watched carefully by the firm in order to ascertain fraudulent claims. This is done because New York State uses a merit rating system, which means that payments to former employees

collecting unemployment insurance are charged against the company's account. This means that if the claim is a valid one, the unemployment insurance rate will be increased in subsequent years.

Through watching unemployment insurance claims last year, the company saved about $1,200 by stopping the payment of fraudulent benefits.

Moreover, Mr. Kremer pointed out that industry can prepare for increased weekly benefits and also an increase in the number of weeks that unemployment insurance will be paid. This statement was based upon recent pleas by Secretary of Labor Mitchell for more liberal compensation laws.

Mr. Kremer reported on a 1953 survey of fringe benefits conducted by the U. S. Chamber of Commerce. According to the report for the sand-and-gravel and ready-mixed concrete group, the fringe benefit costs were as follows:

Percent of payroll.....15.8%
Cents per payroll hour.....$.278
Dollars per year per employee $587

Since fringe benefits are on the increase, Mr. Kremer suggested, if you don't have effective control now, you should start immediately to plan and set up an effective control system.

After these three papers, brief comments were made by E. J. Halter, J. K. Davison & Bro., Pittsburgh, Henry H. Kirwin, Eastern Rock Products, Inc., Utica, N. Y., and M. E. Rinker, Rinker Materials Corp., W. Palm Beach, Fla. Mr. Halter mentioned the importance of keeping two sets of books—one for tax purposes and one for the company's financial purposes. He also pointed out that with the sum-of-the-years'-digit method, the entire value of the asset can be written off, but this is not so with the declining balance method, unless the taxpayer changes over to the straight line method along the way. He also reported that his company pays about 19 cents per payroll hour for fringe benefits or $485 per employee per year.

Mr. Kirwin stressed the importance of keeping adequate records in order to attain maximum tax benefits. He urged that producers keep a complete card index file on all fixed assets, including buildings, equipment, fixtures, etc. Facts to be noted for each asset include complete description, location, date of acquisition, estimated normal life, and remaining life. This data is also useful for fire insurance purposes, he added.

Mr. Rinker stressed the importance of keeping detailed labor costs, since costs control everything. But he said that man-hour reports should be used not only by management, but also by the foremen and even the workers. Passing this information to the employees creates a competitive feeling, as well as greater interest in the job and company.

R. R. Sablain, Roy Sablain, Inc., Lansing, Mich.; Fred C. Dorenbush, Grand Rapds Gravel Co., Grand Rapids, Mich.; George H. Cook, Stewart Sand & Material Co., Kansas City, Mo.; and B. J. Sablain, Roy Sablain, Inc., Lansing, Mich.

OPERATING AND TECHNICAL SESSION

Gravel in Asphalt Mixes Stanton Walker, N.S.G.A. engineering director, led off the technical session with a paper entitled *Specifications for Aggregates for Bituminous Mixtures.* He stated at the outset that a large potential market is available for gravel in the field of bituminous mixes; it is up to the producer to apply basic salesmanship and engineering to tap the market. He pointed out that the market is underdeveloped even in the light of existing specifications (such as angularity), and that there are many opportunities for broadening recognition of the economy and efficiency of gravel. Two major jobs, the WASHO test road and the Washington National Airport, were cited as excellent examples of the successful use of gravel in bituminous mixes.

In promoting the bituminous market, the producer should first apply engineering to determine which type of bituminous mixtures are adapted to the gravel available and which ones are not, and second he should apply salesmanship to shape the market to the particular gravel available.

In discussing the many kinds of bituminous materials, the speaker pointed out that these range from the slow-curing road oils through the medium- and rapid-curing cut-backs and the several emulsions to the penetration grades of asphalt. For asphalts alone, the A.A.S.H.O. specifications list 35 grades. Then there are tars in several grades and various powdered asphalts, he added.

In terms of mixes, the Bureau of Public Roads recognizes 15 surface courses, and the Asphalt Institute lists 17, exclusive of base courses. Thus it is clear that when a road is identified as "black top", that is not very definitive.

Concerning requirements for angularity in bituminous mixtures, Mr. Walker stated that the bugaboo of crushed stone *versus* gravel aggregates still presents itself. In the coarse graded, relatively thick surfaces, he pointed out, stability is influenced significantly by the shape of aggregate particle. In very thin surfaces the base must be depended upon for stability, and shape of particle is of less importance. For the dense grade mixtures it is the mortar matrix which is principally responsible for stability. Thus, it is evident that the problem revolves around particle shape *per se* rather than the question of whether the material is crushed stone or gravel, he said.

Nevertheless, he went on, if the bituminous field is to be exploited over its entire range, attention must be paid to angularity, however it may be attained. Under most current specifications, for mixtures needing angular aggregates, limits on crushed particles range all the way from 30 percent up to 100 percent. Some of these, Mr. Walker stated, refer to one fractured face and others to two.

These are arbitrary approaches, however, because of the contribution of natural shape to angularity. To overcome this condition, there is a growing practice of placing the limitation on strength rather than angularity. Thus, if materials will produce the strength required, they should be used.

Next, Mr. Walker discussed typical bituminous mix specifications. In the so-called "lower cost" types of surfaces, gravel finds quite wide acceptance, he said, largely because of the fact that the angularity of the aggregate does not contribute to load bearing capacity *per se* in surface treatment.

The speaker reported that the A.S.T.M. provides for the use of

(*Continued on page* 96)

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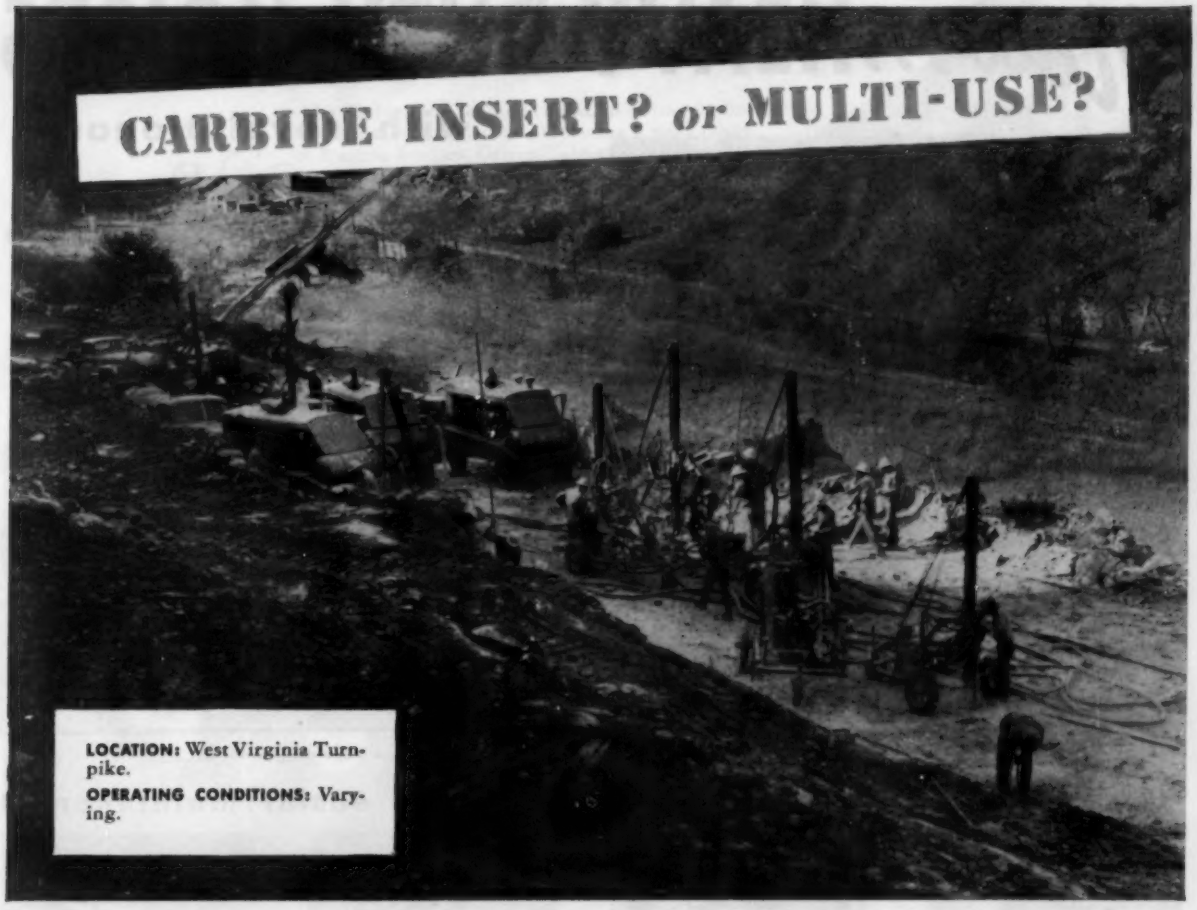

14 out of 17 contractors on new West Virginia turnpike cut drilling costs with TIMKEN® multi-use bits

SEVENTEEN contractors equipped with 189 wagon drills did the drilling on the new West Virginia turnpike and 14 of them used Timken® multi-use bits. Some tried other makes and then switched to Timken bits.

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If you're drilling ordinary ground, Timken multi-use bits are most economical. However, for extremely hard and abrasive ground, Timken *carbide insert* bits drill faster and more economically. They're also best for drilling constant-diameter holes, small diameter blast holes, extremely deep holes. Some of the turnpike contractors used Timken carbide insert bits when they encountered exceptionally abrasive ground.

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Get the bits best fitted to your drilling needs. Call the Timken Rock Bit Engineering Service. The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

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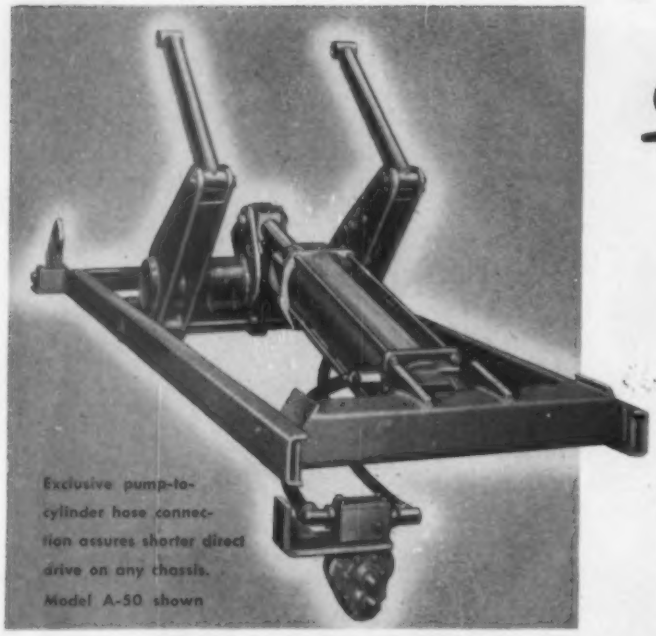


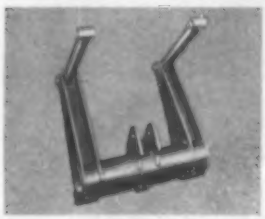
Exclusive pump-to-cylinder hose connection assures shorter direct drive on any chassis. Model A-50 shown

Payload capacities in tons at body lengths shown*

	Standard Duty		Heavy Duty	
Body Length	Model A-30	Model A-40	Model A-50	Model A-60
8′	8			
9′		8	10	12.5
10′		7	9	11
11′		6	8	10
12′			7	9

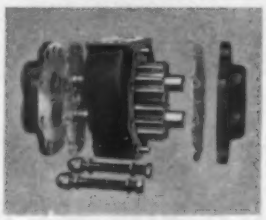
*Based on standard operating conditions

Newly Engineered for better performance, easier maintenance!



Stronger, less dead-weight

Unit construction of this rigid torque tube, with tubular lift arms, gives increased strength with less weight . . . also keeps hoist from binding or buckling, by insuring equal lift on both arms under all conditions.



Improved hydraulic controls

New laminated 10-tooth gear pump, with distortion-proof center-body and anti-friction bearings, assures smoother operation, longer life. "Non-creep" spool valve and aluminum PTO housing are "*plus*" advantages.

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New center-lift design, with 5° higher dumping angle and extra low cylinder mounting, gives better lifting leverage for faster dumping cycles, with less strain on hydraulic system. Built-in oil reservoir ends pump starving.

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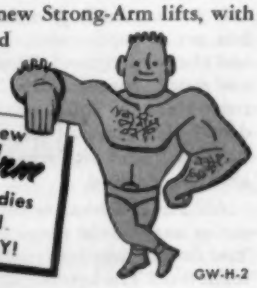

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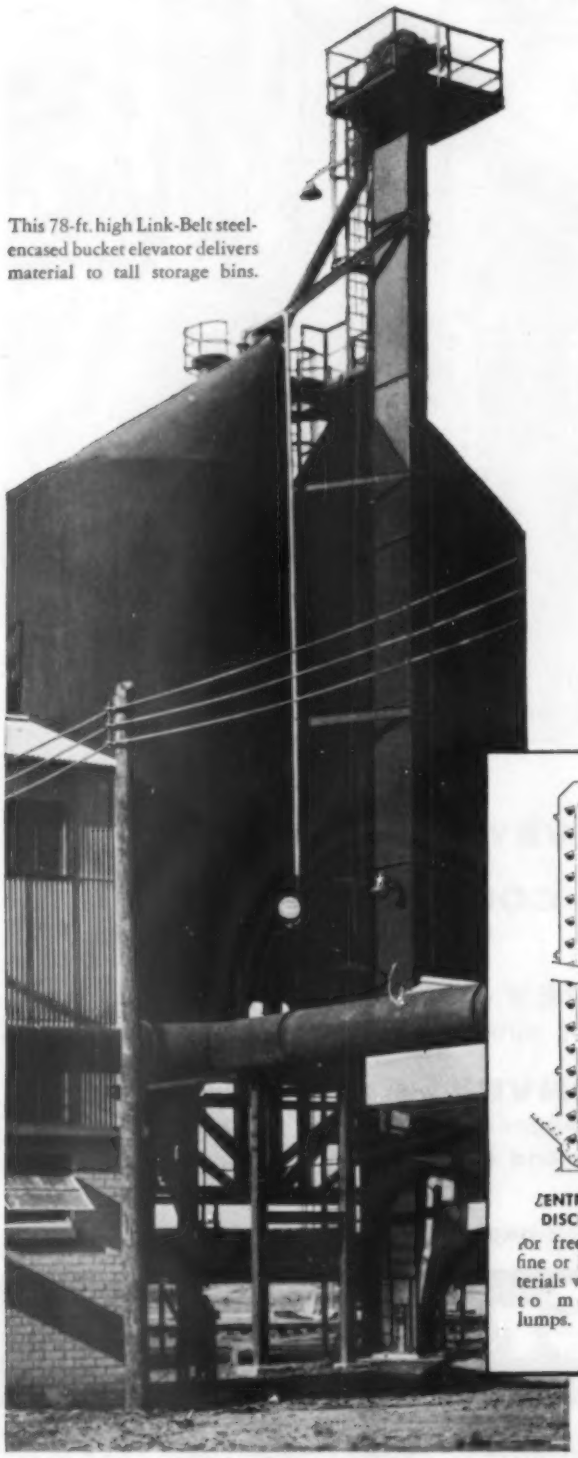

This 78-ft. high Link-Belt steel-encased bucket elevator delivers material to tall storage bins.

Let LINK-BELT recommend the bucket elevator that best meets your requirements from 13 types in 4 basic designs

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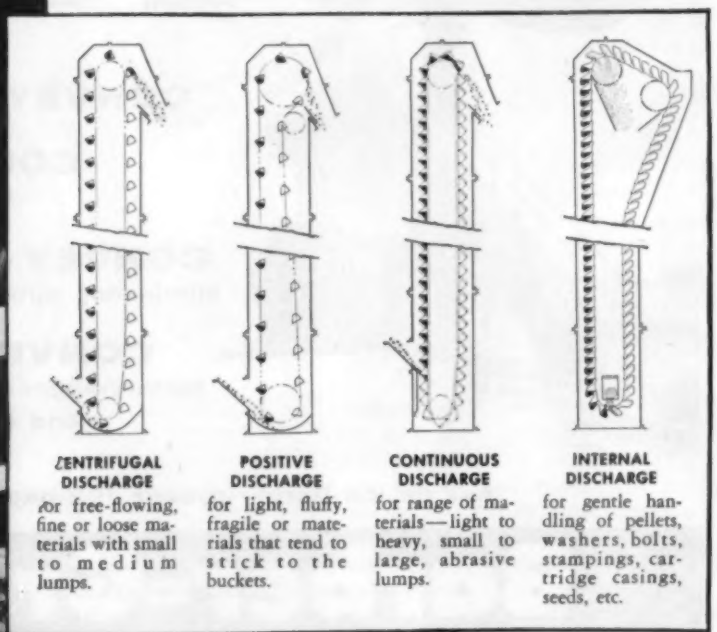
For expert engineering cooperation, call your nearby Link-Belt office. You'll get an unbiased recommendation . . . with no obligation, of course.



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Stone cold facts from the
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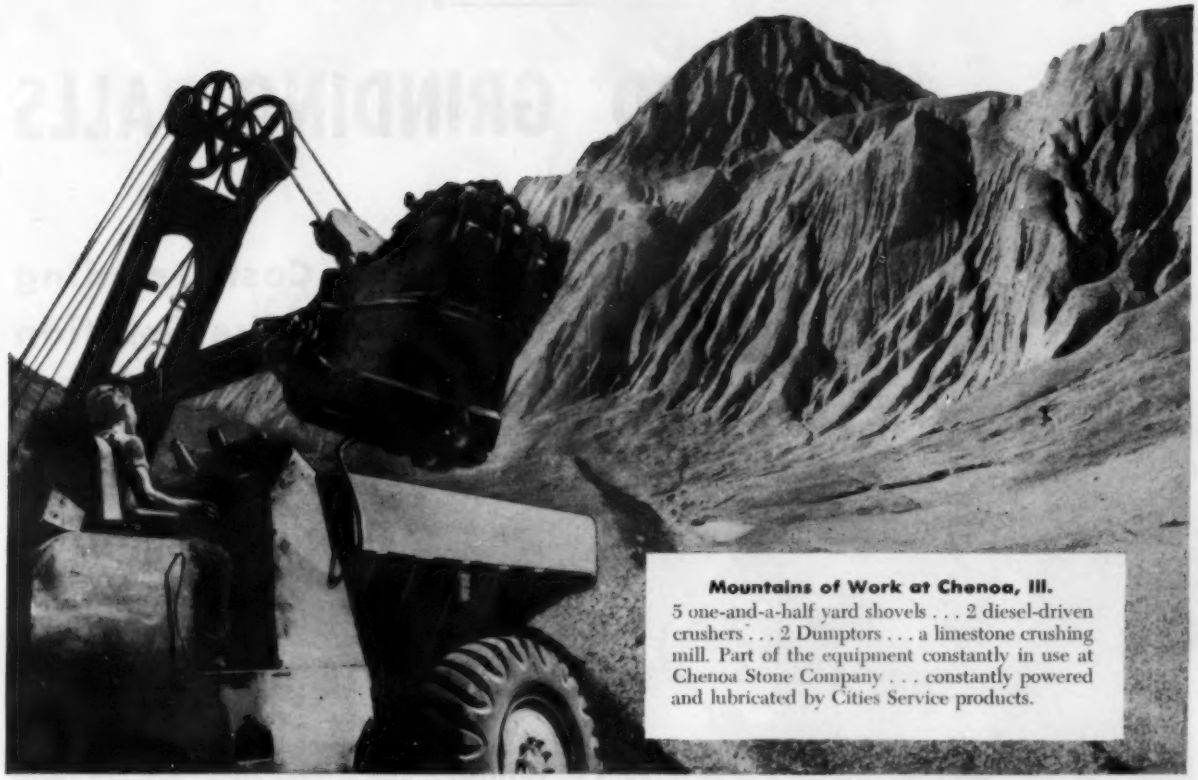

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"We also are using far less oil between changes. In fact Cities Service C-300 actually cut make-up oil from 5 to 6 gallons every 150 hours to less than one gallon every 150 hours!

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"Cities Service has given us top-notch service, the best we've ever had. We are better supplied than ever and have learned to rely on Cities Service dependability."

There is nothing Cities Service could possibly add to Mr. Vickrey's statement, except a reminder to contact your local Cities Service representative in order that you may enjoy similar results in *your* operation. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

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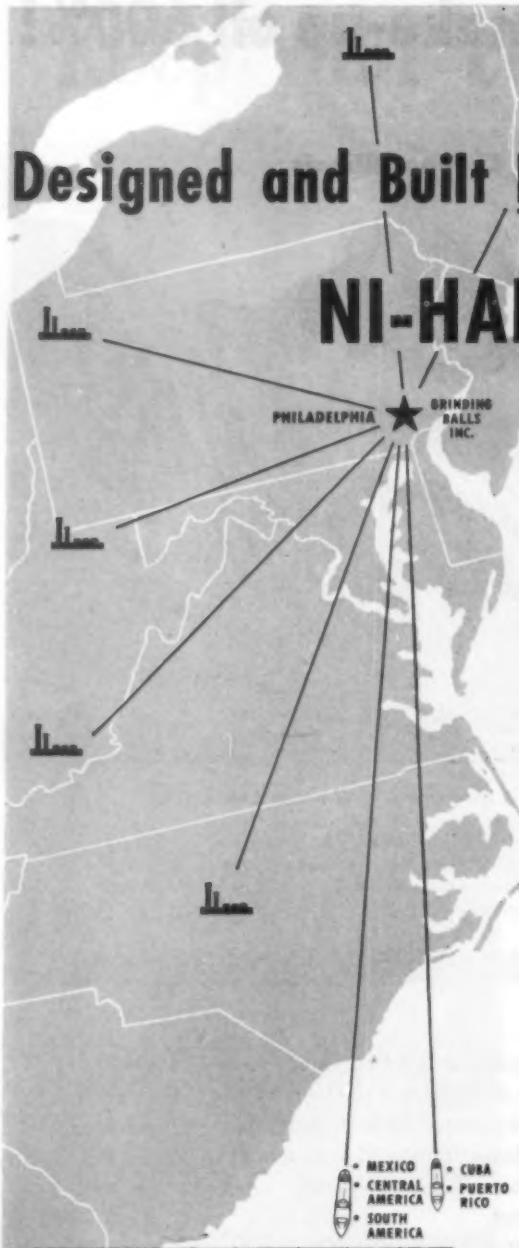

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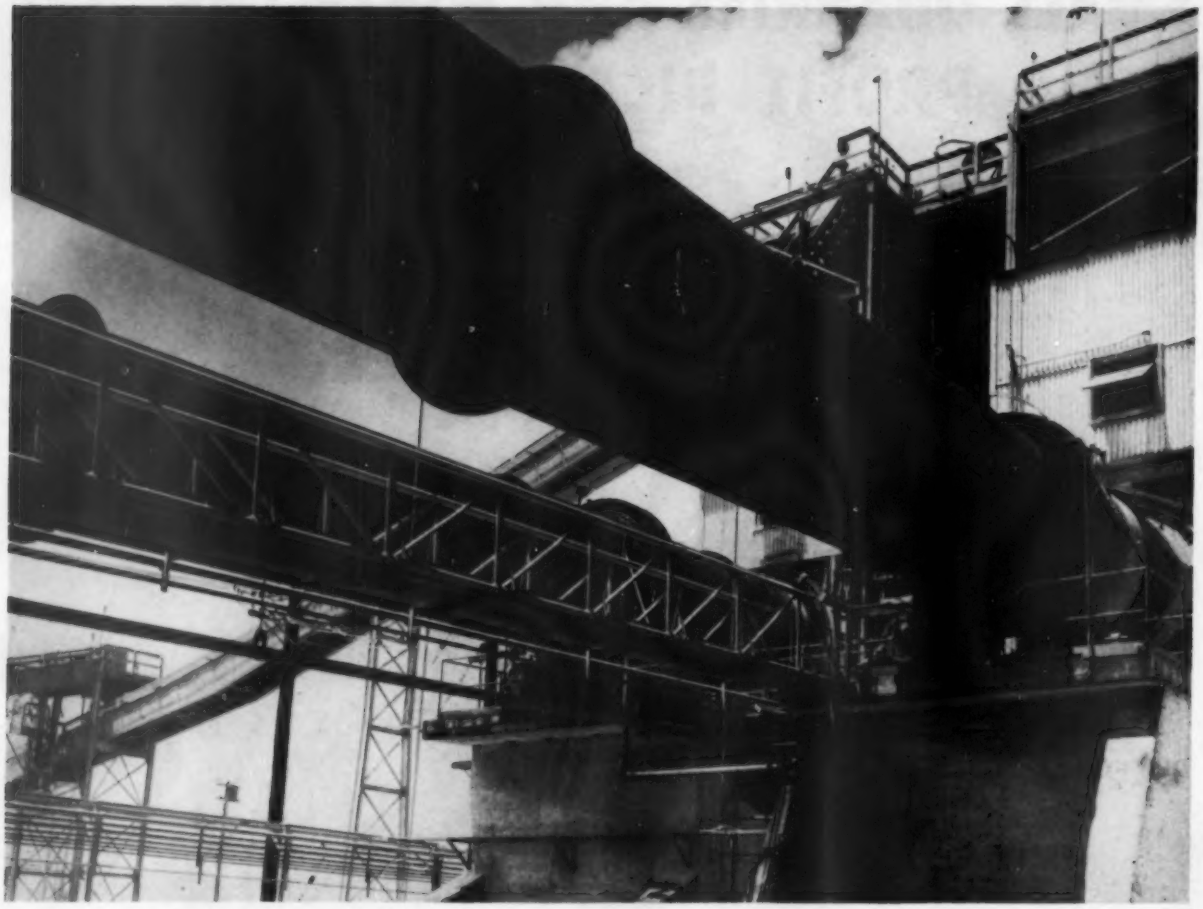

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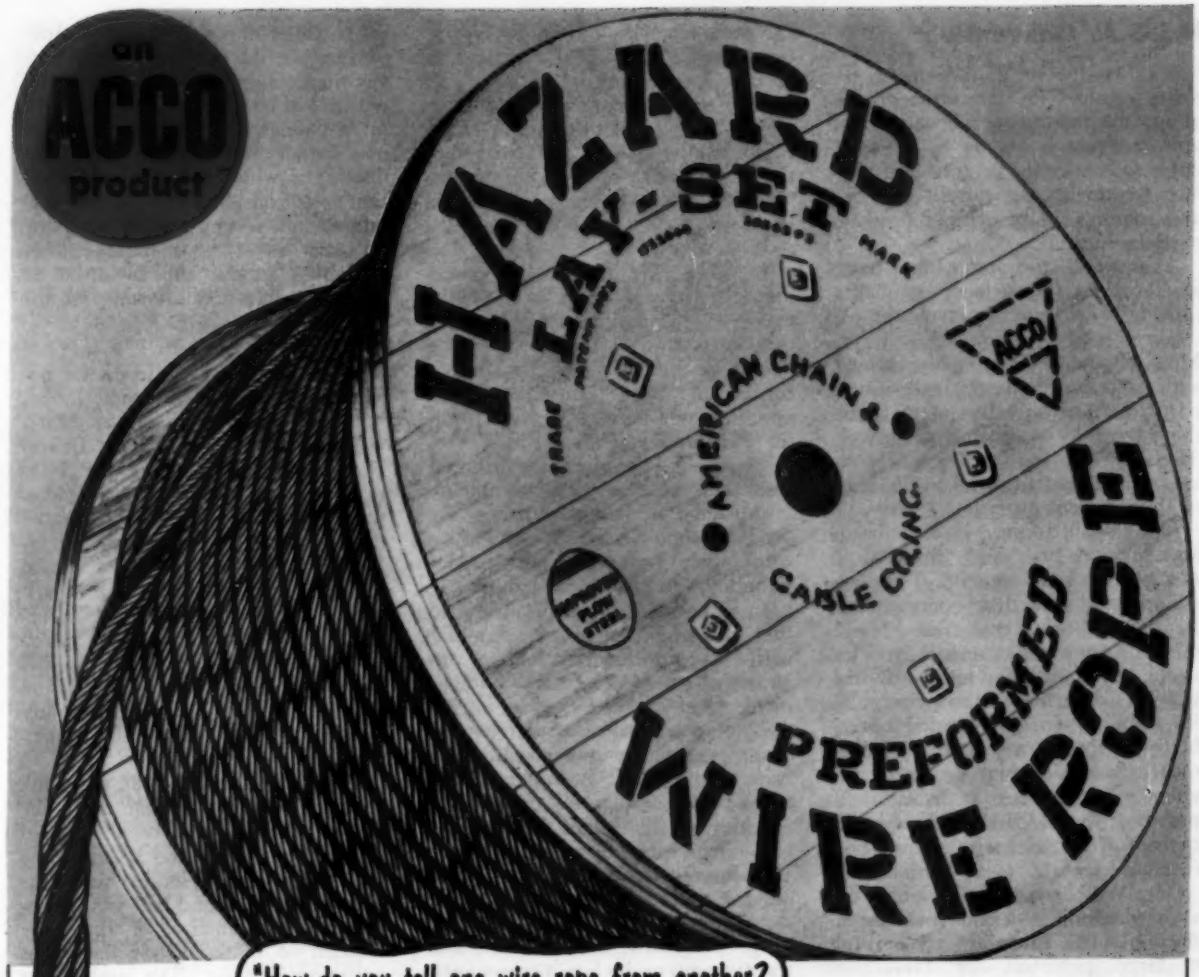

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plus ACCO Registered Wire Rope Slings

N.S.G.A. Convention

(From page 85)

either crushed or uncrushed gravel in surface treatment, while the Asphlt Institute is not so liberal; the latter fails to refer to gravel in surface treatments for certain surfaces and requires 70 percent of crushed particles in others.

About half the states that have specifications for surface treatments provide for the use of gravel with no requirements for fractured surfaces. Most of the remainder use gravel with some requirements for crushed particles; and only five states limit the aggregate to other than gravel. These differences in policy reflect, to a very large extent, local availability of the different aggregate types.

The so-called mixed-in-place bases and surfaces provide a diversity of specification requirements. They are either dense-graded or open-graded. In general the dense-graded road mixes do not require crushed particles in the gravel; it is the mortar matrix which is depended upon principally for stability. In open-graded mixes, however, there are generally requirements for a fairly high degree of angularity, as represented by crushed particles; the A.A.S.H.O. requires 50 percent of particles with at least one fractured face.

Mr. Walker reported a trend toward plant mixes—either traveling or fixed plants. The plant mixes offer a large potential for marketing gravel, he stated. These range from the relatively "low grade" cold mixes to the hot mixes using penetration asphalt. For the most part they are, or can be, dense-graded mixes which may be designed on the basis of the strength measured by test, a better measure of their stability in the road than any considerations of angularity.

In conclusion, Mr. Walker stated that the question of angularity requires consideration in bituminous mixtures, but that the mere specification of percentage of crushed particles is not the answer. Some gravels with a high percentage of fractured particles resulting from crushing may be less angular than other gravels which have never been touched by a crusher. What is needed, he said, is a performance test of the bituminous mixture itself. This test he indicated should open the way for the use of many gravels in high type mixes where they are not now admitted.

Reliable Sampling In his paper *A Test No More Reliable than the Sample,* C. E. Proudley, chief materials engineer, North Carolina State Highway and Public Works Commission, Raleigh, called for a crusade to have the job of sampling considered of equal value with the job of testing, the title of his paper explaining the reason. He stated that the responsibility of proper sampling lies with the producer, even though the consumer or inspector may actually take the sample.

In view of this fact, he recommended tht the producer should make daily sampling a part of his operations; and that in designing the plant, provision should be made for convenient (and non-hazardous) sampling at a point where it will do the most good. If an outsider takes the sample, the producer should assist him in every way possible to insure good sampling. Further, the producer should have some one in his employ who is familiar with proper sampling and testing procedures.

In addition, the speaker advocated that the producer become familiar with basic statistical methods of analyzing data. Along this line he pointed out that it is just as important to know the deviation from the average as the average itself. This being the case, it is imperative to take several samples and to test each one individually, rather than to combine them into one master sample. He also recommended that files of old test reports be kept. From these reports one can determine the usual range of quality, the extremes, and the average; and when a current test report does not show a value which departs from the average variation, one can feel confident that the quality has not changed.

In taking samples, Mr. Proudley stressed the importance of collecting a large enough sample. A fair rule is to take 100 lb. for each inch of maximum size of particles; thus 50 lb. would suffice for ½-in. gravel, and for sand about 18 lb. is sufficient.

The speaker stated that samples for quality should be taken from the finished product. This allows for some drying out and some degradation of softer particles, and otherwise provides for a condition which can be reproduced in samples taken at some time after delivery.

The speaker also discussed the difficulty of obtaining a representative sample from a stockpile, particularly of a blended aggregate. The most accurate way is to use a clamshell or shovel to penetrate the pile in several places. Better yet, he said, is to obtain the sample from the stockpiling conveyor belt.

Another important point brought out by Mr. Proudley concerns developing a new deposit. Before production begins, the producer should survey the deposit to plot the variations which will be encountered when the pit is extended. He mentioned that new exploration methods have been developed which lower the exploration costs considerably. He also recommended setting up a sampling program as soon as feasible after beginning production, in order to check possible nonuniformity of the deposit.

Reducing Wear A highly informative paper on *Abrasive Resistance of Various Materials Used in Sand and Gravel Production* was presented by E. Norman Bernhardt Jr., Warner Company, Philadelphia, Pa. The paper dealt with experiments carried on by Warner involving the use of special steels and rubber lining. The experiments, which began about two years ago, were conducted in order to extend the life of wearing parts. Studies were first made of two worn discs on a crusher and on two worn bushings in the same club link (eastern type) of a main bucket elevator.

In the case of both the club link bushings and the crusher discs, the respective parts had been installed new at the same time in the same unit, had been in service the same number of hours and had worked toward the production of the same amount of material, yet there was variation in wear. The study, once begun, soon mushroomed to include different types of wear-resistant materials, as well as a change in the design of various members.

The first step involved taking sections of the two discs and the two bushings in order to determine hardness and composition comparisons. Since these tests showed very little variation among any of the four pieces, photomicrographs were made to study the grain size. These photomicrographs revealed a somewhat normal grain size in the piece of superiod wearing qualities, while the other piece exhibited extremely large grains and many tiny blowholes, showing that the second piece had been poured at a very high temperature.

Further studies indicated that this grain size was "burned in" and was impossible to refine. Therefore the local foundry supplied Warner with two different types of steel for the pins and bushings, namely (a) Hadfield steel with vanadium added to form nuclei for grain formation, regardless of pouring temperature, and (b) an experimental manganese-

chromium-molybdenum steel with fine martensitic grain structure and greater initial hardness.

The two new steels were mated in every combination with the manganese steel when they were installed in the bucket line. After 12 weeks of service they were removed and studied. Not only did the vanadium additions increase the life of the manganese steel, but the experimental steel proved superior to either of the others. On the pins it registered ⅛ in. less wear than the plain manganese steel pin, and the experimental bushing showed 3/16 in. less wear. To verify these results, the firm studied the wear on the three types of pins when mated with the same type of bushing. Again the experimental steel proved superior, Mr. Bernhardt stated.

Summing up, he stated that although this special steel seems to fit these particular applications very well, it is not a cure-all nor a replacement for all manganese steel installations. It is just that sometimes a better steel for a particularly troublesome installation can be found by consulting the local foundry or supplier. Although manganese steel is a good "middle-of-the-road" steel so far as impact and abrasion are concerned, there are steels which will do a better job in certain installations.

"The secret in selecting a new type of steel," he went on, "is to obtain a proper balance between strength and hardness which will equal the balance between impact and abrasion. The correct procedure is to start with your present hardness and strength and increase the hardness in small increments, rather than to start out with a high hardness, with the risk that the strength will be sacrificed to the point where the material will break in service."

Along this line, he reported a sad experience involving the use of a special type of hardened cast-iron for one of the crusher discs. Unfortunately, it had insufficient strength to withstand the impact and broke in service. This cast-iron, no doubt, has suitable applications in the sand-and-gravel industry, but it must be an installation relatively free of impact, such as a pump casing or flume liner.

The speaker next discussed the use of rubber lining, pointing out that rubber is an exception to the general rule that strength is needed to withstand impact while hardness is an asset in reducing abrasive wear.

He stated that their experience showed that rubber, when properly installed in certain instances will outlast mild or hardened steel about 4 to 1 and manganese steel at least 3 to 1. Consequently, in sand dump tables and chutes, rubber has almost completely replaced steel, he said. In one installation, although the rubber is still in service after two years, the steel angles that hold the rubber in place have been replaced four times. In another installation involving gravel chutes, after 990 hours of operation, 1-inch manganese steel had worn through while the 1-in. rubber faced metal plate (rubber placed on a 16 ga. steel plate) had worn only ¼ in. In addition, the rubber faced metal plate is 27 percent cheaper, he stated.

C. Gail Debolt, Debolt Concrete Co., Richmond, Ind.; M. G. Kerr, American Aggregates Corp., Detroit, Mich.; and Jack E. Selden, HarriSteel Products Co., New York, N. Y.

However, it was pointed out that rubber is not a cure-all, since it does not lend itself to every chute lining application. He pointed out that the recommended thickness of rubber for an installation depends on the material density, largest particle dimension and either the height of free fall or velocity. There are, of course, some cases where rubber is not recommended, he added.

In addition, there is a general rule-of-thumb requirement that the slope of a rubber-lined chute must be increased 5 degrees to obtain the same material velocity as in a similar steel-lined chute. If this is not practical, a jet of water can be introduced to wash the material down the rubber-lined chute, assuming, of course, that it is not possible nor desirable to decrease the velocity of the material by lining the chute with rubber.

Lastly Mr. Bernhardt discussed the use of perforated plate. He stated that experiments with square perforated plate to replace the wire cloth on rotary screens had proved quite successful. Although the perforated plate costs 21 percent more, it outlasts three wire cloths. In addition, the operating men stated that the perforated plates were easier to install and maintain than the wire cloth.

Sand and Gravel Jigs A relatively recent development in the sand-and-gravel industry was described in a paper by E. B. Sheets, McGrath Sand and Gravel Co., Inc., Chillicothe, Ill., entitled *The Application of Jigs to Remove Deleterious Particles from Sand and Gravel.* McGrath, a pioneer in the washed sand and gravel industry, was faced with the problem of deleterious particles in the deposit, particularly of such lightweight materials as lignite, bituminous coal, and ochre.

According to the speaker, the company had gone through numerous phases of the cleaning operation, trying out disintegrators, log washers, ripple tables, screws, scrubbers, air pressure, and even electricity. All of these methods had been successful to a degree, he stated, but none of them was entirely satisfactory.

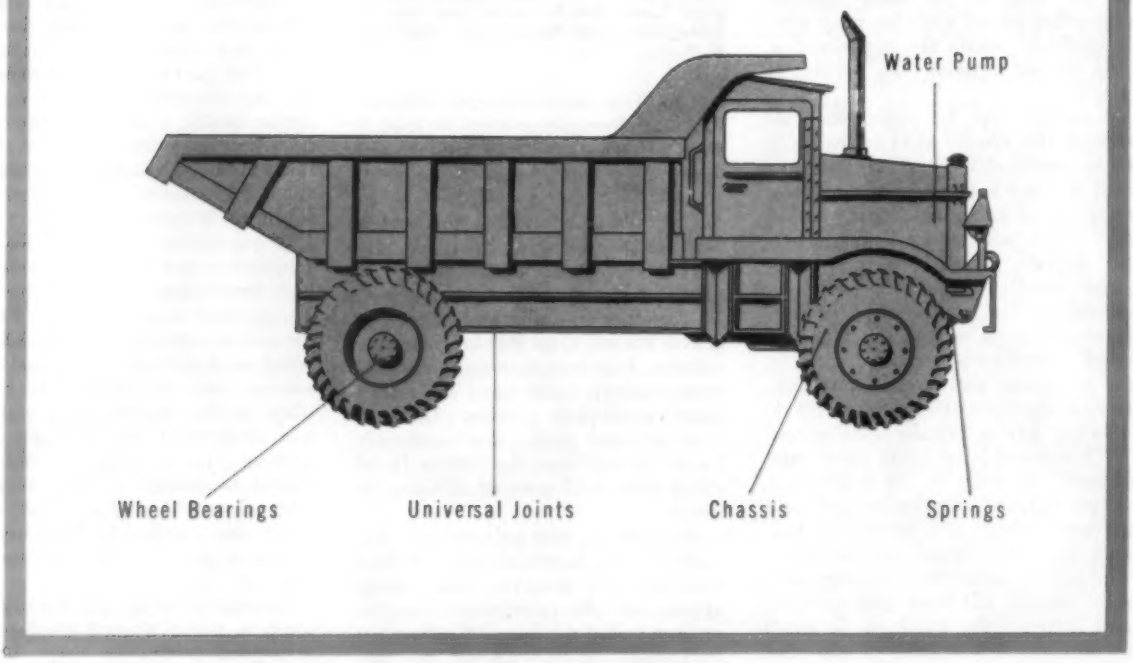
Heavy-media separation was also considered, but due to the relatively high installation and operating costs, the method was set aside. Finally, the speaker reported, jigs, which were being used successfully in coal preparation, were considered. In 1953 a pilot jig for experimental purposes was obtained from Meckum Engineering, Inc., Ottawa, Ill., and placed in operation. Shortly thereafter (in the spring of 1954) a jig plant, also supplied by Meckum, was set up to process both concrete sand and 1-in. gravel.

According to the speaker, the new setup is doing a good cleaning job at a good production rate. The jig had a pulsation rate of approximately 160 strokes per minute. Material is fed in at one end and, through the method of water stratification, jigged the entire length of a feed table. The feed table is constructed with heavy slotted screen at its bottom to permit the fines to pass through and out of the cast-steel hutches, which are attached to the main diaphragm on the lower part of the jig. As soon as the material hits the bed or the main body of the jig, it immediately begins to stratify. The lighter specific gravity materials come to the surface, while the heavier materials go to the bottom. At the discharge end of the jig, the lighter materials are skimmed off and wasted, while the heavier materials are discharged into the loading bin. The capacity of the jigs is about 60 t.p.h., and each jig is equipped with a 10-hp. electric motor.

In preparing sand, the particles of coal and ochre above the No. 8 mesh

This **one** *grease*

does



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screen are removed. This is done by treating the No. 8 mesh to ⅜-in. material in a Meckum gravel jig. After jigging, this material is then blended back together with the fine sand that passed the No. 8 mesh screen and loaded into bins. The speaker reported that 99 percent of the deleterious sand particles are removed.

In jigging or processing gravel it was reported that best results are obtained when graded materials are passed through the jigs. Thus, ⅜- to 1-in. material and 1- to 1½-in. material should be jigged separately. For this reason the jigging plant and equipment are located so that screened sizes are passed over the jigs and then returned and discharged into the loading bins. It was found that the jigging operation does not change the gradation of the gravel. Tests of treated and untreated gravels show that the jigs remove more than 95 percent of the materials with less than 2.25 specific gravity, e.g., coal, ochre, etc.

Further tests, he stated, show that the untreated gravel has a Los Angeles Rattler test loss of 28.3 percent, and that jigged gravel has a loss of 23.1 percent. These tests, of course, also indicate that there are some deleterious materials that run as high as 2.45 in specific gravity in the deposit, he added. Some of these materials, he pointed out, are removed in the jigging process, particularly when jigged a second time. Tests indicate that the loss of gravel in jigging is approximately 3.08 percent of the total material handled.

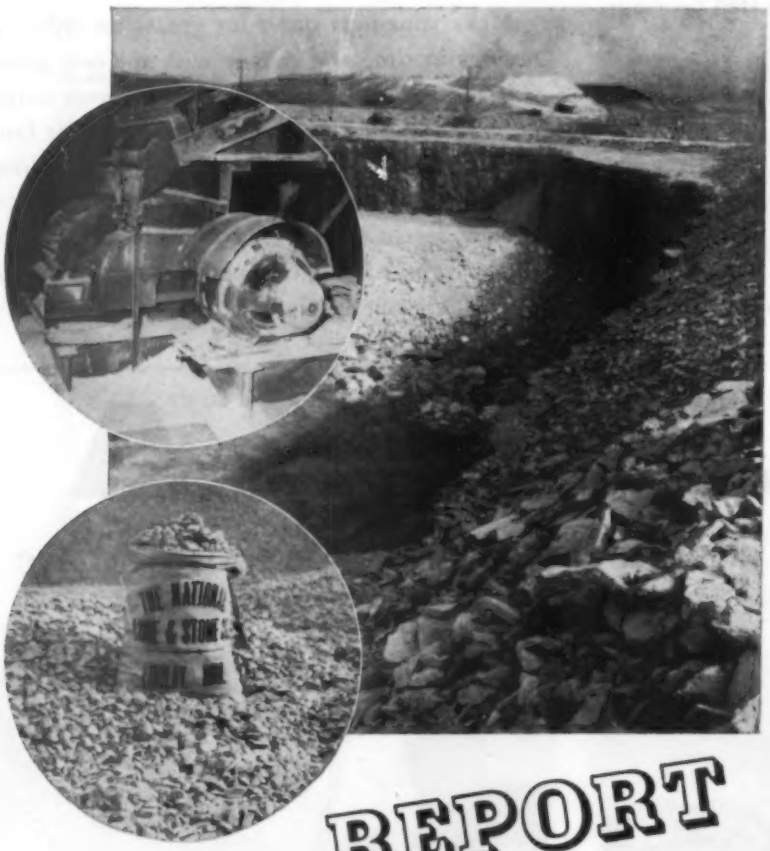
The speaker stated that it is difficult to determine the exact cost of jigging a ton. At Chillicothe, the three jigs are run by one man. The total connected power load in the complete operation of three jigs is 167½ hp., which includes power for jigs, conveyors, and water pumping. The cost of the jig repair parts for a season's operation are very little as there are not many wearing parts, he added. Each jig requires about 400 g.p.m. of water at 50 p.s.i. pressure at the jig.

In conclusion, the speaker reported that the results of using jigs for cleaning gravel have been quite satisfactory, although the degree of performance reached in cleaning sand has not been attained in cleaning gravel.

Thermal Compatibility Recent studies on thermal compatibility were reviewed by Delmar L. Bloem, N.S.G.A. assistant director of engineering, at the close of the technical problems session. He cited earlier research findings which supported the theory that durability of concrete is affected by the thermal coefficients of concrete ingredients, pointing out that fundamental errors had been made in the studies. Earlier researchers, he stated, fell into the pitfall of *post hoc* reasoning, of mistaking simultaneously occurring events as positive evidence of cause and effect, and of using erroneous procedures for adjusting and interpreting data. Factual evidence is conspicuously absent, that the difference in thermal coefficients between coarse aggregate and mortar affects concrete durability, he said.

Thus there is no justification for excluding sand and gravel from certain concrete jobs because of varying thermal coefficients of the individual particles. Cases were cited where crushed limestone and limestone sand were specified for a concrete job in preference for sand and gravel, primarily because of the thermal concept. Yet the aggregate costs were considerably higher, since the "sand" had to be imported from a distant source, while good sand and gravel supplies were available in close proximity to the jobsite.

In view of the recent findings, Mr. Bloem expressed hope that until valid evidence comes to light, the undue emphasis on thermal properties as a partial basis for selecting concrete ingredients will be dropped.



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It's that kind of record that makes Eagle equipment a favorite in the limestone field. In addition to the faithful 24 x 24 hammermill pictured above, there is installed in this quarry an Eagle 36 x 42 which takes the rock from the gyratory crusher and reduces it for the smaller mill.

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Use the prepaid postcard to get this literature or additional details about new equipment and products reported elsewhere in this issue.

EXPANSION PLANS? If you're planning to modernize or expand your facilities to meet the demands of the construction boom ahead, you'll need this *Kelso-Burnett* brochure on the engineering of electrified plants. (1)

CUTS STRIPPING COSTS by up to 50% is the claim that *Caterpillar* makes for their equipment in this booklet entitled: Modern Machines for Mines, Pits and Quarries. In it are descriptions of the firm's tractors, shovels, graders, scrapers, trailers, and engines. (2)

LONG ARMS FOR YOUR TRACTORS is the name of this bulletin offered by *Sauerman Bros., Inc.* It gives scraper and slackline bucket sizes for 40- to 150-hp. tractors equipped with a two-drum winch. Maximum spand, line speeds, and capacities in cu. yd. are also shown. (3)

LABORATORY EQUIPMENT. The *Denver Equipment Co.* gives complete information on their wide and varied line of laboratory equipment in this catalog and also shows how their 5 Deco services will assure efficient and profitable operations. (4)

NEW SEPARATORY VESSEL which combines exceptional simplicity and high efficiency is the subject of this pamphlet of the *Ore & Chemical Corp.* It tells of the vessel's easy installation and operation, and its low power requirements because the blade is the only moving part (which also means little upkeep). (5)

HIGH CAPACITY LOADER. The new B-68 loader made by the *N. P. Nelson Iron Works, Inc.* boasts a rated capacity of 8 yd. This rugged machine will pour 10 tons of material per minute into the truck, distribute it evenly from front to rear, all in one continuous operation. It transports at 20 mph easily because front wheels disconnect from 4-wheel drive and full power steering is provided. (6)

PRECISION SCALES with a background of dependable performance for nearly 60 years are offered by the *American Scale & Vise Co.* Their high quality, durable scales are offered in the Eighty series (motor truck pitless) from 10- to 20-tons capacity; the Three Hundred series (motor truck pit) from 15- to 30-tons capacity; and the Quick-Move group (semi-pitless or ramp) with 25-tons capacity. (7)

RUBBER CATALOG offered by the *Quaker Rubber Corp.* is a comprehensive list and description of all their belting, hose, packing, and moulded rubber products. (8)

ELECTRIC ASPHALT PLANT made by *Universal Engineering Corp.* can be either stationary or portable. It features flexibility, push-button controls and progression indicator lights, and controlled batch aggregate drying. (9)

A FRONT-END LOADER of ½ to ¾ cu. yd. capacity which digs, loads, backfills, and rips is the Terratrac made by *American Tractor Corp.* A 5-toothed, hydraulic-operated scarifier is available for it, and the Terratrac can be easily loaded or unloaded from a trailer which is optional. (10)

PERFORATED METALS made by *Standard Stamping & Perforating* are covered in this comprehensive catalog. Helpful buying information, end uses of perforated metals, and manufacturing processes are given. (11)

DIESEL ENGINES made by *General Motors* in the "6-110" series and industrial and marine models from 200- to 575-hp. are described in this brochure. It entails features of design, specifications, and power curves. (12)

RUBBER-TIRED DOZING and hauling equipment in pits and quarries is the subject of this performance reprint book by *LeTourneau-Westinghouse.* (13)

TOOLS AND EQUIPMENT made by the *Martindale Electric Co.* are given in this catalog. Production and safety equipment together with commutator, motor, electrical, and mechanical maintenance products are included. (14)

A BIN VENT FILTER which provides a standard, adaptable unit for applications where a hopper, bin, or other enclosure should be maintained under a slight vacuum to prevent escape of product or dust is discussed in this bulletin of *The Ducon Company.* (15)

SPRAY WELDING is easily accomplished when using the new Model C Spray-welder made by *Wall Colmonoy Corp.* It is a metal powder spraying unit used in welded overlay type hard-facing applications. (16)

CONVEYOR-SCREEN PLANTS which are completely portable and made by the *Kolman Mfr. Co.* now feature a reciprocating plate feeder built into the Kolman loading trap. This makes possible complete portability by making the plate feeder an integral part of the conveyor and trap. (17)

MAGNETIC PULLEYS which automatically remove tramp iron from sand, slag, ore, chemicals, cement, gravel, etc., are fully described in this data booklet from *The Homer Mfr. Co.* (18)

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A HIGH-PRESSURE CLEANER which cuts cleaning time and thereby lowers costs is the subject of this pamphlet offered by the *Malsbary Mfr. Co.* Malsbary's 250 combination cleaner offers 5 cleaning actions, pressures to 300 psi, temperatures to 325 degrees F., and volumes to 360 gph. (19)

A BIN LEVEL INDICATOR made by the *Bin-Dicator Co.* incorporates a bull's-eye signal light and toggle switch. The light is available on the general purpose Micro switch model. (20)

SOLID TIRES were given a series of comparative tests and the outcome is shown in this booklet. The "before" and "after" photos show how well tires made with rubber by *The Monarch Rubber Co.* stand up under stress. (21)

FEEDER VALVES made by the *Blower Application Co.* now offer a new vented valve design which serves as a "bleed-off" for high-pressure air when the valve is used to feed low-pressure cyclones, hoppers, or other equipment. (22)

SIX-CYLINDER ENGINES give long life and low cost service. In this leaflet *Willys* fully describes two of their new 6-cylinder industrial engines. Power curves, engine specifications, and special features are given. (23)

A RELAY CONTROL BOX which electronically serves as a means of handling substantial power leads with very minute currents over the contacts of regulating devices, is covered in this data sheet by the *Precision Scientific Co.* (24)

HOSE AND DUCT installation is facilitated by the use of the accessories discussed in this brochure of *The Flexaust Co.* Application of these accessories results in quicker, neater installations. (25)

RAPPING by means of a new system which is continuous, intensity controlled and designed for the Cottrell electrostatic precipitators, is summarized in this bulletin offered by *Research-Cottrell, Inc.* (26)

AGITATORS AND CONDITIONERS with a really positive circulation are made by the *Denver Equipment Co.* They feature a patented standpipe which assures positive agitation and circulation and eliminates possible short circuiting of pulp. (27)

WIRE CLOTH SCREENS by the *Hoyt Wire Cloth Co.* are made from two grades of high quality wire: Supertough, with a high degree of abrasion resistance; and Abraso, which combines good abrasion resistance with fine fatigue qualities. (28)

AIR-BREAK STARTERS for 2200-5000 volt motors are the subject of this pamphlet by *The Electric Controller & Mfr. Co.* These starters are built for circuits of high fault capability and have current-limiting power fuses. (29)

TELESCOPIC HOISTS which save weight are covered in this bulletin by *The Heil Co.* They have a 42½- to 52-degree dumping angle, low-mounting height, and universal mounting. (30)

TRACTOR. This folder illustrates the many features of the new 208 hp., rubber-tired tractor built by *LeTourneau-Westinghouse.* The unit's great range of speeds assures the shortest possible work cycle. (31)

ASPHALT PLANTS and their accessories are the subject of this brochure available from *Standard Steel Corp.* In it are given layouts available, flow charts, and complete data on all major parts, such as the heavy-duty Standard dryer. (32)

ADJUSTABLE SPEED CONTROL with alternating current input is described in this bulletin of *The Louis Allis Co.* Their electronic Select-A-Speed is a wide speed-range drive, in ratings ¾- through 15-hp., which is suitable for operation from a.-c. power supply. (33)

ELECTRIC HOISTING equipment is featured in this brochure offered by *The Yale & Towne Mfr. Co.* Yale Cable King wire rope electric hoists are available in capacities from ¼- to 15-tons and are air-cooled to eliminate excess heat from both motor and load brakes. (34)

DUCTILE IRON replacing alloy gear castings and forgings provides a satisfactory substitute which possesses the process advantages of gray iron and which has engineering properties that approach those of cast steel, says this leaflet by *International Nickel.* (35)

HAND LIFT TRUCKS and hand pallet trucks just made available by the *Market Forge Co.* are announced in this bulletin. It contains descriptions of the machines and helpful buying hints. (36)

FLEXIBLE COUPLINGS are easily purchased when using this handy selection guide offered by *Ajax Flexible Coupling Co., Inc.* It describes how the firm's couplings work, what they do, how they are rated, and the correct way to choose the one best suited for your problem. (37)

A RATIO REGULATOR for controlling oil burners by the varying of pressures is covered in this folder by the *Hauck Mfr. Co.* It is an automatic and simple means of proportioning oil and air to industrial burners of the 2-air connection type. (38)

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Handling big quarry blocks from pit to loading tackle is one of the toughest 'dozing jobs that can be given a machine. Here at Walker Cut Stone Co., Junction City, Kansas, a veteran CAT* Diesel D8 Tractor with No. 8S Bulldozer moves 20 to 30 of these huge blocks every day. Their average weight is 10 tons and they frequently run as high as 14 tons.

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ZONING PROBLEMS, RECLAMATION

One major session of the N.S.G.A. convention, presided over by E. K. Davison, J. K. Davison & Bro., Pittsburgh, concerned zoning problems and reclamation practices. The talks and the discussion which followed emphasized the seriousness the problem brought on by dwindling gravel reserves and increasing zoning restrictions.

Land Condemnation The first paper was presented by Richard K. Humphries, Pacific Coast Aggregates, Inc., San Francisco, on the subject *What May the Sand and Gravel Industry Expect in Land Condemnation Proceedings Instituted by Governmental Agencies.* He reported a recent case history in which a portion of his company's gravel holdings was condemned by the Federal Government. About 4½ years were required before the proceedings were concluded. Because of dwindling reserves in the area, the land condemnation was a serious loss to the company, he said. The awarding of $125 per acre for the condemned land was a relatively small amount compared to the value of gravel lost.

The outcome of this isolated case, he said, indicates that the industry must do a better job of public relations and education—otherwise condemnation proceedings like this will undoubtedy become more and more frequent. The general public must become aware of the status of the sand and gravel industry and its value to the nation's economy, he emphasized.

The job of public relations is becoming more important with time, since gravel plants are no longer isolated. An increase in the number of highways and the growth of suburban areas has brought gravel plants before the public eye.

Mr. Humphries passed on to individual producers two important suggestions relating to the problem. First, he said, the producer must take it upon himself to acquaint the local citizens with his business; second, he should keep an eye on all land sales in the area, particularly noting the value of the other land plots.

Zoning Problems In Britain *How Britain Answers the Problem of Public Interest in the Industry* was discussed by H. E. Peirce, O.B.E., J.P., chairman, Ballast Sand and Allied Trades Association, London. He pointed out that although Britain's sand and gravel industry is relatively small compared to the American industry (annual production is 55,000,000 tons, coming from about 1,000 pits), there is a tremendous amount of public interest in the industry because of the relatively limited amount of land available to house his country's large population and her industries. Consequently, zoning or land planning and other types of restrictive problems are very acute in Britain.

In order to alert the government on the vital economic importance of the gravel industry, the British producers were instrumental in having the government set up an Advisory Committee on Sand and Gravel in 1946, composed of members of Ministries of Agriculture, Works and Planning, Local Authorities, geologists, and three members of the trade association. The committee divided the country into 16 gravel regions, more or less on a geological basis, and then sub-divided the region into service areas, each area serving a local market.

For each gravel region the committee produced a report which was a combination of knowledge derived from the industry, local authorities, ministries and geologists. Each report discussed available deposits, markets, and agriculture values, and recommended certain areas of land which should be used for any development other than gravel working. In addition the committee produced a general survey of the sand-and-gravel industry, and a discussion of reclamation. It took eight years for the committee to produce these reports, which were published at intervals. The last six, however, are not yet in print.

The published reports do not, of course, give details of the land in question, although maps exist whose circulation is confined to the ministries, local authorities, and the industry. The committee's recommendations are offered by the minister to local authorities only for their guidance; they are not bound to accept them. However, most local authorities are only too glad to have some guidance, the speaker stated. One major contribution of these reports was to overcome the wide-spread ignorance of the people concerning the industry.

H. E. Peirce, O.B.E.-J.P., chairman, Ballast Sand and Allied Trades Assn. of Great Britain, and W. Pelz, director Lime-Sand Mortar, Ltd., Great Britain.

Mr. Peirce discussed several problems facing the industry, all based upon the strict zoning laws. These problems begin with obtaining permission to open up a new pit or extend an old one; then regulations requiring the land to be worked in a certain manner; practices concerning reclamation, water pollution, and the like.

On the subject of pollution, the speaker referred to a 1951 River Pollution Act, which in its original form included all waters, even wet gravel pits. Forunately the wet pits were later excluded from the act, although those connected with a stream or river are still included. Penalties for infractions of the act are very severe, he said.

Stagnant water in pits has also posed a problem; this situation has been met in places by some form of aeration, like pumping air into the water.

Mr. Peirce also discussed reclamation in England, which was started about 20 years ago. It includes restoring the land for new uses, forming lakes, reforestation, etc.

In concluding, the speaker told of his association's public relations work. He reported that every vital fact about the industry is made public through most of the newspapers in Great Britain. He told of a recent conference of national and technical papers held last October at which the journalists were warned that unless the public and planning authorities realize they cannot do without the sand and gravel industry, there would be considerable delays in building and reconstruction programs.

At this conference the newspapermen were given a small booklet which set out 100 facts about the industry. The conference was highly successful, Mr. Peirce stated. Conferences of this sort, on a regional or local basis, are also held, and the booklet is circulated to everyone likely to have influence on the industry.

Reclamation A paper entitled *Why Our Industry Should Be Interested in Reclamation* was prepared by F. D. Coppock, chairman of the board of American Aggregates Corp., Greenville, Ohio. Mr.

Coppock, who is often referred to as the father of reclamation in the sand-and-gravel industry, was unable to attend the session on zoning and reclamation, due to a brief illness. In his absence his paper was read by Walter C. Rhodes, secretary of the corporation.

The paper pointed out that American Aggregates has been doing reclamation work for the last 20 years. In most cases reclamation practices have been integrated with actual operations, thus waste sand and overburden are disposed of in such a way as to produce a desired condition and thus lessen the ultimate cost of rehabilitation. Among the many worthwhile reclamation practices carried on are those of forming lakes, ponds, and water reservoirs, and reforestation and replanting. In this way the land is made valuable for recreation, residential, or industrial purposes.

Because American Aggregates has done such an outstanding job in this field of reclamation, setting an example for the industry, Mr. Coppock's paper is presented in full on page 106.

In the discussion which followed, several producers mentioned restrictions pertaining to depth of pit, setback from roads and railroads, bank and slope rights, and water pollution. In some areas (particularly residential) pits cannot be dug below street level. Another producer reported having to dig at least 5 ft. below or 2 ft. above the water table; the reason for doing so was to prevent stagnant water.

One producer discussed an interesting situation. In order to be allowed to work a gravel site near a village, he had to save the top soil and subsoil and pay into a village trust fund ¼ cent per ton sold; this money, which will amount to $40,000 when the 20-year reserve is exhaused, will be used to reclaim the pit site.

Another producer reported that a natural resource survey has been completed in his area (similar to the British survey discussed by Mr. Peirce). This survey is being used successfully in the zoning of gravel lands.

REPORTS OF STATE ASSOCIATIONS

One of the afternoon sessions of the convention was set aside for a conference of executives of the various state and area associations. H. G. Feraud, executive secretary, Southern California Rock Products Association, presided. Papers were presented by representatives of the Empire State, Ohio, Northern California, North Carolina, and Midwest groups, with discussions following each paper.

Paul R. Smith, executive secretary, Empire State Sand, Gravel and Ready-Mix Association, Buffalo, discussed ways of maintaining interest in state or area associations; he grouped these methods under (1) administrative setup, (2) meeting plans, and (3) services. Regarding administration, he stated that the association should be organized to have representation from all geographic districts in the area covered. Board directors should be rotated every three years or so in order to insure representative participation. To insure continuity of operation, he suggested, past presidents should stay on the board of directors for at least five years. Committees should play a major role in association activities, and committee members should be obtained from a cross-section of the industry. Finally, the executive secretary should be able to call on each member at least once a year; this latter suggestion is very essential for generating interest in the association, Mr. Smith emphasized.

General meetings should be held two or three times a year. The programs should be well planned, so as to include a blending of business, technical, and social affairs. Generally it is good to have a nationally known figure as a guest speaker, if possible. Mr. Smith also stressed the importance of having district meetings each year, at which problems of a more local nature can be discussed. The speaker also pointed out that minutes of all general meetings and board meetings should be sent out to the members.

Mr. Smith concluded by discussing the varied services that a state or area association can provide, which are effective in stimulating interest. Acting as a clearing-house for information of direct or indirect significance to producers is perhaps the most important service, he stated. This would include passing on information relating to legislative developments, labor negotiations, technical data, workmen's compensation, and the like. Sponsoring short course schools is another major service, he added.

Claude L. Clark, secretary, Ohio Sand and Gravel Association and Ohio Ready Mixed Concrete Association, discussed *Effective Measures of Procedure in Legislative Matters.* He began by stating that there are no set procedures; instead, each legislative problem is unique and must be handled accordingly.

Mr. Clark stressed the importance of having individual producers work through their own legislators on matters pertaining to the industry. He contended that every producer (regardless of the size of his plant) can be of assistance in these matters. If the producer feels he has no influence directly, perhaps he can gain support indirectly through a contractor or an architect who may have direct influence. In any event, the legislators should be presented the facts which they need to know in order to make wise decisions. Mr. Clark also pointed out the importance of co-operating with merchant bureaus, Chambers of Commerce, trade associations, etc., in matters of common interest.

In the event that industry members are invited to appear before legislative committees, the speaker said that the individual spokesmen should be carefully picked. It is of great importance to have a good cross-section of the industry represented. Then, in sponsoring bills, the industry should select the right man to introduce the bill. Finally, Mr. Clark urged individual producers to keep the association informed of their endeavors in the legislation field, so that the industry work can be properly co-ordinated.

Labor Relations for State and Area Associations was the topic discussed by E. R. Booker of the Rock, Sand and Gravel Producers Association of Northern California. He stated that one major function of his association is in the field of labor relations. Unlike most associations, his group negotiates labor contracts. He stated that the sand and gravel industry in his area has only one labor contract, but for the ready-mix industry, because of its more local nature, there are about 30 different contracts negotiated by the association.

A major advantage of the association entering into labor negotiations, he pointed out, is that wages are stabilized; this, of course, leads to less confusion, particularly along administrative lines.

H. J. Stockard Jr., executive-secretary, North Carolina Ready Mixed Concrete Association, presented a paper on *Encouragement of the Production of Quality Products.* He discussed two ways in which the concept of quality concrete is promoted by his state group. One method involves holding a two-day quality concrete conference school at North Carolina State College every year. The course, requiring only a $3

(*Continued on page* 124)

Why Our Industry Should Be Interested in Reclamation

By F. D. COPPOCK*
Chairman of the Board
American Aggregates Corporation

I BEGAN in the sand and gravel business 53 years ago this spring in the year 1902 when I was 23 years of age, and we built our first gravel plant ten years later in 1912. At that time we had no precedent to guide us, nothing to pattern after, and it was a long hard pull to build up our business from its small beginning to what it is today. . . .

The operations with which I have been associated started by loading one or two cars per day by hand, using shovels and wheelbarrows—no machinery whatever. The rate of pay then per 10-hour day was less than the rate of pay per hour today. We are now operating aggregates plants at 15 different locations and our output is equivalent to 1,000 carloads per day. . . .

Over the years our corporation has used up a lot of land area as a natural result of our excavations. These excavated areas were from the beginning very unsightly and a definite detriment to the surrounding areas. After several years of operations and after being ridiculed by neighboring landowners and others, we began to consider the possibility of reclaiming and rehabilitating some of our worked-over and abandoned pit areas. As I liked the out-of-doors, I more or less assumed the responsibility of looking after our reclamation work. I soon learned that it was a big job.

At our 15 different locations we are using up a lot of land. An average gravel deposit yields about 50,000 tons of marketable aggregates per acre, and as our output is running well over 10,000,000 tons per year, I found that we were working over and exhausting about 200 acres of deposits each year, plus portions which did not contain gravel, and other portions due to our having to stay away from highways and property lines — all of which totaled about 250 acres per year. However, not all of the 250 acres per year have to be worked over as we are fortunate in that at most operations our excavations are producing lake areas which equal about half of the total acreage worked over. With this amount of area added each year to a very considerable backlog of neglected excavated areas, our reclamation problem became a very sizable one.

Portions of reclamation costs can be included in plant operating cost if reclamation is integrated with operation. If we disposed of surplus sand, strippings and waste material as part of our operation in such a way as to produce a desired condition and lessen the ultimate cost of rehabilitation, these costs would then become a part of the current operating cost. If we did not spend a part of our earnings by doing these things as a part of current operations, we would then have to pay the normal and surtax amounting to 52 percent on the added profit.

F. D. Coppock

An interesting sidelight is that the tax which we have to pay on gains from the sale of real estate is 25 percent as compared to the normal and surtax amounting to 52 percent. Incidentally, if we do this reclamation work as a part of our operating cost, the government also gains in the end, as the 25 percent which they will receive on the gain from the reclaimed property, which would otherwise be worthless, will far exceed what they temporarily lose in profit tax. Besides, the local communities will benefit materially by the development of taxable properties, whereas if these areas are not reclaimed, they will not only be worthless but will be detrimental to all of the adjoining properties. It is difficult to realize or even estimate the full value of such reclamation work, especially when the properties are located within thickly settled communities.

Because of the dense fabric of tax laws which limits our net gains, we, like all other operators, are seeking legal ways and means of minimizing these taxes. If it were not for recently enacted laws with reference to write-offs due to the receding face of our operations, and also to depletion write-off, there would be little left for expansion in our industry.

We have been doing more or less reclamation work for the last 20 years. At the location where we first started our gravel operations nearly 50 years ago (Greenville, Ohio) we have worked over a very considerable acreage. About a quarter of a century ago we began some reclamation work on this area. It so happened that the gravel excavations produced lake areas. During the 20 or 30 years preceding this reclamation work these excavated areas became brush grown, eroded, and very unsightly. By using draglines and other equipment in off-operating periods we sloped the shorelines to the water in the lakes, eliminating the abrupt and hazardous banks. We produced mowable slopes, and planted acres of bluegrass and a few thousand trees. We formed a fishing club and leased building lots. Cottages and homes were built. We finally got the cottage owners to form a corporation and buy the area. There are now 166 cottages and homes built on this area. About 50 of them are permanent homes. They have paid us the entire purchase price of $120,000 for 277 acres comprising the park and we still have one-half of the lots left to sell.

At Urbana, Ohio, we have three lakes produced by our gravel excavations, each containing about 50 acres, in which the water is 20 ft. or more in depth. At this location we have made a trout stream adjacent to the lakes which is now well supplied with rainbow trout. We have sloped the shorelines and planted bluegrass and trees, and some day we are certain that the value of the lot areas surrounding these lakes will far exceed the original cost of the

*From an address delivered by Mr. Coppock during the recent convention of the National Sand and Gravel Association at Miami.

land, plus the cost of our reclamation work.

At our Columbus-Dublin plant which is located well within the corporate limits of Columbus, Ohio, we have utilized our surplus sand, strippings, and a portion of the former plant area in the preparation of a building width fronting on a six-lane boulevard with a mile long lake in the rear. We are now selling these lots under rigid restrictions at $125 per front foot. We have already realized more from the sale of lots in this area than the total original cost of the land, plus all of the costs in connection with the rehabilitation work, and we have not sold even one-half of the lots in this area.

At Oxford, Mich., we are reclaiming a 500-acre tract of land on which there is a lake about one mile in length . . . the result of former gravel excavations. Around this lake we have a sufficient width for building lots, driveways, etc. We are making gradual slopes to the shoreline, planting trees, and soiling and seeding. We have been working on reclamation at this location for three years and do not intend to sell any lots for several years to come. We are certain that at some time in the future, even though the area is located in Michigan where there are hundreds of publicly-owned and non-restricted lake areas, that we will be able to sell the lots and realize considerably more than the cost of the rehabilitation. Areas surrounding lakes which are wholly owned and properly restricted can be sold at good values.

At Indianapolis, Ind., and at Dayton, Ohio, we are disposing of surplus sand, strippings, etc., in such a way as to produce factory sites, some of which we have been able to sell at several times the cost of the original land. At Dayton we are, by agreement with the city officials, excavating gravel from a 200-acre piece of gravel land owned by the city for the purpose of producing a freshwater reservoir to supply the Dayton water works. It will take us about 30 years to complete this reservoir. Our excavations will extend to a depth of about 40 ft. below water level in this area, and our slide rule artists claim that the total capacity of the reservoir will be approximately 2,500,000,000 gal. . . .

I agree that not all of the worked-over areas and abandoned pits can be reclaimed and made equal in value to the cost of the rehabilitation. Some operations are so located that it would be impossible to create values equal to the cost of the rehabilitation work. Others can be made more valuable than they were originally, and disposed of at prices well in excess of the rehabilitation costs, especially if these areas are within or near thickly populated areas. Any worked-over area, in my opinion, can be sufficiently reclaimed at a cost less than the damage done to the neighboring properties.

Like all other operators, we have undertaken to purchase deposit areas near or within the city limits, so as to be able to produce and deliver the products to the points of use at a low cost. We are making certain that there are no objections to our operations in these populated areas, by doing such a job of reclamation work as will result in useful and usable areas and be a compliment to the surrounding neighborhood. We are this spring planting about 10,000 young trees on our several properties, which is only a part of what we will ultimately plant.

Unless we as operators reduce the objections to our operations by doing proper reclamation work, we can expect to be zoned out of the most desirable locations which are adjacent to the thickly populated centers. If we cannot operate within or near these populated areas, then the added cost of making our deliveries to the point of use will greatly exceed what it would have cost us to rehabilitate the areas closer to the market.

I feel that we have an obligation to the public to make these worked-over areas something other than unsightly and damaging to the neighboring properties. I feel that we have a greater obligation to properly rehabilitate worked-over areas within or near the thickly populated areas. . . .

Governor Frank J. Lausche, of Ohio . . . is trying hard to produce legislation which will adequately compel mining interests to do a reasonable job of reclamation following their operations.

Knowing that reclamation is not ordinarily done on a voluntary basis by the strip miners of coal, Governor Lausche procured the adoption of a law requiring the operators to post a bond of $200 per acre, guaranteeing the investment by them of $190 per acre for reclamation.

The law was the best that could be obtained from the legislature; Governor Lausche does not feel it is adequate. The legislature has declined so far to adopt a bill offered through the governor's sponsorship to strengthen the law.

He predicts that the next step, unless the strip mine operators go along with a bill providing for adequate reclamation, will be the demand for a law imposing on the coal mining industry a severance tax on each ton of coal mined, to be paid by the industry to the State of Ohio. If such a law is enacted, it will ultimately be applied to all kinds of mining, including gravel mining.

The gravel operations of our association members throughout the country are doing a minor damage as compared with some of the strip coal mining and other mining operations. In one county east of Columbus, Ohio, ridges of strippings from coal mining are miles long, covering thousands of acres. A lot of the worked-over lands in this strip mining area have been abandoned and forfeited for tax by the operators. Little or no attempt has been made until recently to reclaim or even reforestize these areas. No wonder our governor feels that something should be done to provide the state with a legal right to prevent this waste of our lands.

I believe we will ultimately be forced by legislation to reclaim our worked-over areas or to pay the state an amount per ton on the materials mined. If so, these costs will far exceed the cost of our doing the reclamation work. I believe we will be forced to suffer the consequence of more strict zoning if we don't do any reclamation work. I am not willing to blame the neighboring landowner because of his objections to the unsightly, neglected, ugly, brush-grown and abandoned worked-over pit areas strewn with piles of strippings, boulders, and abandoned equipment. . . . I, too, would object to being forced to live in a neighborhood where such conditions were certain to develop.

Aside from the satisfaction of making something desirable by reclaiming these unsightly areas, I believe there is a real economic advantage to be gained. We deserve little credit for hoarding the small amount of profit which we are permitted to keep in this age of high taxes; so why not do some of these things which will be lasting reminders of our public interest?

It is my sincere hope that during my few remaining years I may witness the transformation of a lot of our own worked-over areas from their present unsightly condition into areas to be desired rather than objected to. . . .

YOUR 1954 INCOME TAX RETURN

By HAROLD J. ASHE

BEFORE attempting to make his 1954 income tax return a quarry operator should familiarize himself with the changes in the ground rules with passage of the 1954 Internal Revenue Code. While individual income tax rates have not been disturbed, a taxpayer's income tax bill may be substantially less if he avails himself of the liberalization of some of the rules and regulations. Reliance on past regulations may prove misleading, if not disastrous, in preparing a 1954 income tax return.

Because of space limitations, no attempt will be made to go into all of the ramifications of the new code. Only those aspects of the law which may be generally helpful to quarry operators will be discussed and only in sufficient detail to set forth the principles and applications.

One point does need underscoring: *tax-savings are where a taxpayer finds them.* In his preoccupation with gaining every possible tax advantage from his business, he should not neglect non-business applications which can vitally affect the amount of his tax bill.

Accelerated depreciation—A quarry operator now has the option of using an accelerated method for calculating depreciation on certain business assets acquired after 1953.* This method will materially reduce the income tax bill for the first few years of asset life.

Note the following point, not covered in the special article on accelerated depreciation: the first year's depreciation may be prorated over two successive tax returns if the asset being depreciated was acquired later than the first of the year. Thus, if an asset was acquired June 30, 1954, one-half of the first year's accelerated depreciation will be taken in the 1954 income tax return; the remaining half of the first year's accelerated depreciation will be taken in 1955, together with one-half of the second year's accelerated depreciation.

Embezzlement and theft losses can now be deducted only in the year discovered. Consequently, if such losses have been discovered in 1954, they must be reflected in the 1954 return.

Carry-back losses—If a loss is sustained in any business year, this can be offset against the profits of *two* prior years now, instead of one. The carry-forward to five subsequent years remains in effect. This gives a total of eight years now in which to offset profits with losses.

Bad debts—A business bad debt remains such—even after a taxpayer goes out of business. Formerly, such a debt was considered non-business in nature if it went bad after closing a business, and had to be treated as a short-term capital loss.

Partnerships reporting as corporations—Proprietorships and partnerships are now permitted to report as corporations if all provisions set forth are observed. Under some favorable conditions, combined individual income and corporation taxes may be less than the individual income tax alone reporting as an individual or partnership. However, such an election carries with it all of the implications of double taxation. There is the grave likelihood that, over the years, a taxpayer will pay more taxes than if he continues to report as an individual proprietor or partnership. Once the election to report as a corporation is made, *it is irrevocable,* unless there is at least a 20 percent change in ownership. Only those quarry operators having large profits, and who are reconciled to leaving a large part of earnings in the business, should consider the possibility of reporting as a corporation. Even then, this irrevocable step should not be taken except after canvassing all the possibilities and drawbacks, immediate and long-range, with competent tax counsel.

Dividend exclusions—The first $50 of dividend income can now be excluded from an individual income tax return. On a joint return the exclusion is $100, if both husband and wife received $50 or more each in dividends. In addition, a credit against tax is allowed on dividends received after July 31, 1954, which will reduce the tax bill.

Medical expenses—The ceiling on medical expenses has been increased from $1,250 to $2,500 for each exemption, with a top limit of $10,000 for joint return or "head of household" status. The 5 percent exclusion rule for medical-dental deductions is no longer in effect. The allowable deduction is now the amount in excess of 3 per cent of adjusted gross income. (A taxpayer and his wife, if either is over 65, may ignore the 3 percent exclusion.) Drug expenses, however, are now subject to 1 percent exclusion, the balance being added to medical bills *before* the 3 percent exclusion is figured.

Example: A quarry operator has adjusted gross income of $11,000. His medical bills are $850 and drugs $250. He excludes $110 (1 percent of $11,000) of drug expense and adds the remaining $140 to medical bills, making $990. Next, he excludes $330 (3 percent of $11,000), leaving $660 deductible. Under earlier regulations only $550 would be deductible, $1,100 less 5 percent exclusion. This liberalization of medical-dental deductions alone may make itemization of personal deductions a tax-saver when added to other deductible expenses.

If travel is necessary for medical care, transportation costs are deductible as a part of medical expenses, although meals and shelter incident to such travel are not.

Contributions can be more generous and result in added tax benefits. To religious organizations, schools, and hospitals 30 percent of adjusted gross income may now be contributed and be deducted in a tax return. To other qualified organizations and institutions, the 20 percent limit of the past applies. However, by careful apportionment, a taxpayer may contribute a total of 30 percent, even though a part goes to organizations confined to the 20 percent limit. Thus, he can contribute up to 20 percent of his adjusted gross income to organizations with the lower ceiling and an additional amount up to a combined total of 30 percent of his adjusted gross income to organizations with the higher ceiling.

Installment interest—Interest charges of time-payment purchases may now be deducted even if the exact amount of the interest is not known. A taxpayer is permitted to calculate this interest at a rate of 6 percent of the average unpaid balance. Parenthetically, a recent court decision has ruled that "carrying charges" are interest for tax deduction purposes. Heretofore, carrying charges, if not expressly stated as interest, have been disallowed. It will still usually result in greater deductions to ascertain the actual interest or carrying charges paid, as these will generally exceed the arbitrary 6 percent allowed by the code.

Sale of a home—In today's real estate market, many private homes are sold at a profit. If a new home is not purchased as an offset, the

*See PIT AND QUARRY, October, 1954, page 86.

sale profit must be reported as a gain. Until now the gain on such a transaction has been determined by subtracting cost from selling price. Now the gain, if any, may be reduced by adding to the cost any expenses incident to fixing up the home to make it more readily salable, such as painting and repairs. These expenses, however, must be incurred within 90 days of the date of the sales contract and must be paid not later than 30 days after the sale. Other costs incident to the sale are also deductible, such as a broker's commission.

Child care—Under certain conditions, a taxpayer may be permitted to deduct up to $600 for the care of a dependent child. To qualify he must be either a widower or be legally separated or divorced, and the child must be under 12 or be physically or mentally unable to care for himself. The payment must be a matter of fact and it may not be made to another dependent.

If a taxpayer's wife works, a deduction may still be taken if (a) a joint return is filed, (b) combined adjusted gross income is $4,500 or less. If it is over $4,500, the deduction is reduced by the amount it exceeds $4,500. Example: Combined adjusted gross income is $4,950, resulting in an exclusion of $450, with only $150 deductible. If a wife works only part of a year, the $600 limit must be pro rated in relation to the length of time worked. Thus, if a wife works only four months, only $200 maximum is deductible, subject to other qualifications. It should be noted that in order to take the child care deduction, it must be itemized and this bars the standard deduction.

Dependency parents—Dependency rules have been liberalized and need watching. If a taxpayer is contributing to the support of a parent, an exemption previously denied may be available to him. This category of dependent must have a gross income of less than $600. (Don't confuse this with abolishing the income test for certain other dependents, to be discussed later.) The old rule continues that more than half of the dependent's support must be contributed However, *this more-than-half may be jointly contributed by two or more taxpayers.*

The code provides that when two or more persons contribute to such a dependent's support, with none of them contributing more than half, they can now agree among themselves which one shall have the exemption, provided the person claiming the exemption contributed more than 10 percent of the support, and total contributions are more than half. The others who have contributed must file a written statement disclaiming the exemption for the year. In the past this exemption was lost to all contributors to the dependent's support because no one person could qualify on the over-one-half basis. By agreement, one contributor can take the exemption one year, another the next year and so on, so that eventually, all contributors get a tax benefit for one year or more.

Child exemption—Dependency exemption is no longer lost if a child, either natural offspring, stepchild, or adoptive child, earns more than $600 a year, provided (a) the child is under 19 or is (b) a student in a school or college on a fulltime basis. Schooling must be for five months or more during the year. The taxpayer, as in the past, must contribute more than half of the dependent's support to qualify the child as a dependent. A scholarship is not considered a part of the child support in reckoning the more-than-half test.

Unrelated dependents—Until now, only those coming within one of eight relationships to the taxpayer could be taken as dependents. The new code provides that any individual can be claimed as a dependent, if such is the fact, *provided that the dependent is domiciled in the taxpayer's home.* Dependents not residing in the home are still limited to the same close relationships.

Death of spouse and income splitting—If a taxpayer's wife dies, he may continue to have the benefit of split-income taxation, as conferred on him by a joint income tax return. This benefit is available for two years, but only if there are dependent children.

Head of household—A taxpayer may now qualify as the head of a household, affording about half of the tax-saving advantages of a split-income tax return, if he supports a parent, even though the parent does not live with him. The fact of support, not the place of residence, is the controlling factor.

Separate support—A court decree is no longer necessary to qualify payments made to a wife, provided they live apart and do not file a joint income tax return. Such payments may be deducted by the husband and they are taxable to the wife. The separation agreement must be in writing and must be signed subsequent to the passage of the new law. Court ordered support payments, even in the absence of a divorce or a written separation agreement, are also deductible if made after the passage of the law. However, the court order must be signed after March 1, 1954.

Filing deadline—Final date for filing individual income tax returns on a calendar year basis has been pushed forward to April 15, and an additional month's time is given those reporting on a fiscal year basis. Partnership returns are due one month later than in the past.

Declaration of estimated income tax is due on April 15 instead of March 15. However, the dates for *quarterly installments* on the estimated tax, after the initial filing and payment, *remain the same*: June 15, September 15, and January 15. These are the dates also on which an amended estimate, if required by changing conditions, must be filed.

In addition to giving serious consideration to the possible tax implications in the tax law changes, a quarry operator should not neglect traditional steps to insure that all business expenses and personal deductions are reflected in his income tax return. Every $100 of overlooked business expenses results in an additional income tax bill of at least $20 in the lowest individual tax rate. If personal deductions exceed the standard deduction allowance, then each additional personal deduction overlooked also carries a tax penalty.

Non-corporate quarry operators particularly should review all actions during the year which resulted in the adding of depreciable assets to the venture. Likewise, a physical inventory of depreciable assets may reveal certain items acquired in past years which have never been reflected in tax returns. While past allowable depreciation which was not taken is gone, unless the taxpayer files an amended return (or returns) within the statute of limitations for tax refunds, a quarry operator is still permitted to recover each year the remaining cost of such assets—and he should do so.

It has been observed aptly that the 1954 income tax law offers something to almost everyone. However, there is nothing in the code that automatically forces any or all of these benefits on a taxpayer. Ample time should be allotted to the careful assembling of all needed data, and every effort should be made to see that all tax-saving advantages are reflected in the final income tax return. The fact to keep uppermost in mind is that the government shares taxable income at the individual level on the basis of a division of at least $1 for the government for every $4 retained by a taxpayer.

Reclamation Progress Great in West

Construction and rehabilitation work in the western states and Alaska will take up more than $142.2-million of the Bureau of Reclamation's fiscal 1954-55's $172-million budget. Contracts in force last July totalled over $425-million, and the Bureau let some 90 new contracts with a face value over $11-million in the July-September period. Some $40-million additional will be let by the end of June '55.

The following briefly summarizes major construction completions on the Bureau's land and water resources development projects during 1954 and forecasts construction activity planned through June 1955.

Columbia Basin Project in Washington: 230 miles of laterals and sublaterals completed for the irrigation system; also a 30-mile reach of the East Low Canal. New work on the project includes 44 miles of canals and laterals, 170 miles of laterals and wasteways, and 6 miles of pipelines.

Yakima Project in Washington: construction of the Chandler Power and Pumping Plant is about 60% completed. New construction includes 22 miles of the Kennewick Main Canal, to be followed by an additional 18 miles of canal construction next spring. By early summer, modifications to the existing Prosser Diversion Dam are to be under way, including raising this concrete diversion structure and altering the headworks.

Palisades Project in Idaho: Palisades Dam, its key feature and the largest of the Bureau's earthfill dams, is about 65% complete. Construction continues on the 114,000-kw Palisades Powerplant and the relocation of roads at the reservoir.

Missouri River Basin Project in Montana: Completion of the 225-ft. high Canyon Ferry Dam and its 50,000-kw powerplant highlighted 1954 activity. Tiber Dam, a 5,375,-000-cu. yd. feature is close to 70% complete. Designs are being finished for the Helena Valley unit pumping plant, tunnel, regulating dam and reservoir, and canal and laterals, with construction to get underway this summer.

Crescent Lake Dam Project in Oregon: Bids issued in October for the work removal of an existing timber-crib dam and construction of a new earth-fill dam, outlet works and open-cut spillway.

Central Valley Project in California: Nimbus Dam and its 13,500-kw powerplant were finished in 1954, as were 190-foot high Sly Park Dam, an earth-fill structure, and 46 miles of pipelines, laterals, and sublaterals for the irrigation system. Work under way includes an additional 90 miles of pipelines. Major construction continues on 162,000 kw Folsom Powerplant (the powerplant structure having been finished in 1954) and on the irrigation systems under the Friant-Kern and Madera Canals. Construction began late in the year on 7 miles of the Corning Canal, including 7 prestressed concrete bridges, first important work on the Sacramento Canals Unit of the Central Valley Project. A 5-mile second section of the canal will be underway by early spring.

Cachuma Project in California: Tecolote Tunnel, last major feature to be completed, was about 85% finished at year's end despite unusually difficult working conditions caused by excessive inflows of hot water and by high temperatures. It should be through by late summer if no additional construction difficulties are encountered. Completed in 1954 were 76 miles of pipelines for the project's distribution systems and the Ortega and Carpinteria Reservoirs.

Elsewhere in California: Monticello Dam, a 295-foot concrete arch structure on the Salano Project, is about 25% ready. The Coachella Valley Distribution System of the All-American Canal System added 11 miles of pipe-lines in 1954. The San Diego Project saw the remaining 29 miles of the 61-mile San Jacinto-San Vicente Aqueduct completed.

Weber Basin Project in north-central Utah: The 3-mile Gateway Tunnel was finished last year. New work on the project comprises the earth-fill Wanship Dam, the 18-mile long Davis Aqueduct, and a 7.5-mile section of the Gateway Canal.

Missouri River Basin Project in Wyoming: An important 1954 start was Glendo Dam and Powerplant. The 207 feet high earth-fill dam and the 24,000 kw. powerplant with 7 miles of access and county roads went under contract in November.

Kendrick Project in Wyoming: the Alcova Powerplant, 36,000-kw capacity, the newest addition to the Missouri River Basin power system, was completed during the past year.

Colorado-Big Thompson Project in Colorado: 1954 saw the virtual completion of all major construction on this transmountain diversion project. The Flatiron Power and Pumping Plant (71,500-kw capacity) was completed, as well as a 13-mile part of Boulder Creek supply canal.

B/R work in New Mexico in 1954 was largely the rehabilitation of drains on the Middle Rio Grande and Vermejo Projects.

In Arizona, a 44-mile long transmission line was completed on the Parker-Davis Project; and on the Gila Project, 27 miles of canals and laterals were completed. Planned to get underway by early spring are 43 miles of canals, laterals, and sublaterals on the Gila Project.

Kansas and Nebraska: Extension of irrigation facilities for far-flung areas of the Missouri River Basin Project saw Nebraska's Bartley Diversion Dam completed; and construction began on the Milburn Diversion Dam in November. In Kansas, Kirwin Dam is about 75% complete and Wester Dam about 20%. Both are earth-fills.

South Dakota: Pactola Dam, a 230-foot high earth-fill structure on the Missouri Project, is two-thirds complete. In the same state, more than 400 miles of high-tension electrical transmission lines, linking major Missouri River Basin Project power centers, have been completed.

Alaska: The 4.5-mile Eklutna Tunnel and alterations to the existing dam were completed in 1954, with the first 15,000-kw powerplant unit placed in operation in December and the second planned to "go on the line" early in 1955.

B/R Work in 1955 to Need 555,000 Barrels of Cement

An estimated 555,000 barrels of cement will be used in Bureau of Reclamation projects in 14 western states for continuance of work under way and for start of new construction in calendar 1955 as follows:

Arizona	50,000	New Mexico	5,000
California	175,000	N. Dak.	2,000
Colorado	3,000	Oregon	2,000
Idaho	50,000	S. Dak.	20,000
Kansas	73,000	Utah	115,000
Montana	2,000	Wash.	50,000
Nebraska	3,000	Wyoming	5,000

Based on these cement requirements, Bureau construction work will require 445,000 cubic yards of concrete which, in turn, will require 560,000 cubic yards of aggregate. Aside from small aggregate pits and quarries utilized by the Bureau's operation and maintenance forces, all quarries and pits used in constructing Reclamation structures are operated by the contractors' forces during the period of construction. Similarly, virtually all concrete production and placing equipment are operated by these firms.

Aggregates for Dalles

(*From page* 53)

ous fractions into a system of collecting troughs. This enables an operator either to save or waste any of the sizes to balance output. The "save" sands, along with some or all of the coarser (—No. 4 + No. 8) from the sand surge bins makes up the finished blended sand, the blending and partial dewatering being accomplished in a king-size (66-in. diam.) Wemco duplex screw classifier. The product is delivered by conveyor to the 7,200-ton finished-sand storage pile.

The requirement of sand needed to make up for the size deficiency in the deposit is manufactured by a pair of Marcy 8- by 12-ft. rod-mills which are fed at both ends and discharged peripherally at the center. Feed ordinarily consists of minus ⅜-in. plus No. 8 product withdrawn from compartments of the sand surge bin, although some material in the ¾- to ¼-in. bracket is used at times, all being introduced into the mills with a controlled flow of feed water. Two Wemco 6-in. pumps return the mill product to the sand department, in effect closing the circuit.

The finished coarse aggregates and blended specification sand are piled in line over an 8- by 600-ft. tunnel, Noble remote-controlled air-ram gates putting the material on the tunnel conveyor which runs up to the top of the concrete plant. A Cedarapids 4- by 12-ft. rinsing screen regrades all coarse material before it enters the batch-plant bins; sand is by-passed, going directly to the sand compartment. Water pumped from the river supplies the plant requirement of at least 2,500 g.p.m. About 40 percent of the water is used by the pocket sizers, 20 percent in the rod mills, 30 percent on the screens, and the remainder for incidental uses.

Center-to-center length of the various belt-conveyors, which vary from 24 to 36 in. wide, totals over 3,100 ft. The 40 or more electric motors have a combined output of 1,800 hp. Controls are interlocked and centralized in a room high above the plant.

The Atkinson-Ostrander batch plant is also a C. S. Johnson installation and is fully automatic in operation. Cement for the entire project comes up river by barge, being loaded at Portland from the silos of the Permanente Cement Co. and the Oregon Portland Cement Co. Type 2 cement is employed in the powerhouse concrete; Type 4 on the spillway.

No attempt is being made to chill the concrete ingredients, nor to cool the mass concrete by the inclusion of piping to carry water for cooling later. Instead, specifications require only that all the concrete placed during the summer months be done during the night shifts. Cement temperature may not exceed 150 deg. F. at the time it enters the mixers. Concrete mixes are designed strictly on the water-cement ratio basis. Protex is employed as an additive.

A total of about 1,550,000 cu. yd. of concrete will ultimately be mixed and placed on the project. Atkinson-Ostrander has nearly 700,000 cu. yd. on its present contracts, and The Dalles Powerhouse Constructors about 620,000 cu. yd. on the main portion of the powerhouse. An additional 230,000 cu. yd. will be involved in the awarding of a contract covering the navigation locks and fish ladders.

John J. Morton is project manager for Atkinson-Ostrander, and C. F. Palmetier serves as project engineer for the Constructors group. Co-ordination, inspection, and general administration are under the watchful eye of the Portland District, Corps of Engineers. H. B. Elder is resident engineer, and Ivan C. Bechtold is chief of the construction section.

Three-in-One

(*From page* 58)

(round trip) to the plants. A LeTourneau 186-hp. Tournatractor has been used since 1951 for stripping, cleaning up after shots, moving stone to the shovels, trimming stockpiles, and generally keeping the quarry and haulage roads clean. It is equipped with a 3-cu. yd. Angledozer blade and is mounted on pneumatic tires so that it can be moved quickly from one job to another. It handles rocks weighing up to 3 tons.

The plants are located on Milan Road, just outside Sandusky, and the main office is in that city. W. J. Sprow is president, treasurer, and general manager; W. J. Sprow Jr. is vice-president; and A. A. Ramsey is secretary.

This dozer is doing clean-up work in the Wagner quarry; it is also used for many other jobs.

Labor Developments

(*From page* 73)

that perhaps next year the political climate may be just right to change the Taft-Hartley Act.

Information on Each Worker

Adding to the long list of information which an employer is required to give the union representing his employees, the Circuit Court recently ruled that virtually no information about a particular employee's earnings could be withheld from the Union if it wants to see such information.

In this case, the employer furnished the union with the following: (1) a list of all the employees; (2) their job classifications; (3) the dates on which they were hired; (4) a list of the hourly wage rates; (5) a schedule of the existing rate ranges paid at the plant, and (6) the number of employees within each rate range. However, the National Labor Relations Board ruled that this was not enough, and the Court agreed.

The union wanted each individual employee's exact wage rate, claiming that this was required for collective bargaining. The ruling said that it was entitled to get precisely that.

The NLRB went even further. It talked not only about wage rates, but also about wages and earnings. It appears to be perfectly clear that if the union had also asked for a complete breakdown of each employee's take-home pay, showing hourly wage rates, incentive earnings, night shift bonuses, call-in pay, etc., it would have been entitled to get all of that information.

personal mention

J. L. E. Kratzer

The appointment of JOHN L. E. KRATZER as assistant plant manager at the Fogelsville plant of the Lehigh Portland Cement Company has been announced by P. A. Groll, vice-president and also operating manager of the firm.

Mr. Kratzer, a graduate of Lehigh University in electrical engineering, was employed by Lehigh in 1946 as an assistant electrical engineer in the Allentown office. Transferred to the Fogelsville plant to set up the maintenance program, he became plant engineer there in 1949.

The following changes in personnel have been announced by O. C. White, North Atlantic dealer sales manager for the United States Gypsum Company.

T. W. COWDRICK has been appointed district manager of the Manhattan District, replacing R. R. HEIGES, who has resigned; D. W. MCNEISH has been named to replace Cowdrick as Providence District Manager, and A. M. PERSONEUS, formerly line salesman with the Syracuse office, has been named to replace Mr. McNeish as sales promotion supervisor, Northeast Division.

Mr. Cowdrick joined the U.S.G. Harrisburg office in 1946. He was a line salesman and gypsum wallboard salesman until 1948, a mason supply salesman until 1951, and assistant sales manager in the plastering materials division until 1952. He was appointed district manager of the Providence District late that year.

Mr. McNeish joined the company in Boston in 1948, and served as chief clerk, then line salesman with that office until his appointment last year as sales promotion supervisor.

Mr. Personeus joined U.S. Gypsum's Syracuse office as a sales trainee in 1949. He then became chief clerk of that office, and was appointed line salesman in 1950.

GEORGE B. O'BRIEN, district sales manager in Albany, N. Y., for the North American Cement Corporation for 12 years, has retired after 25 years with the company. He has been succeeded by FRANK L. SMITH, who also has been with the company 25 years.

HAROLD J. MCCORMACK was recently elected vice-president of Ponce Products, Inc., Miami, Fla.

F. B. Bowen

Three new appointments have been announced for the Phosphate Minerals Division of the International Minerals and Chemical Corporation, all effective January 1.

F. B. BOWEN, manager of the Florida department, has been advanced to the newly-created posi- He will supervise from his headquartion of production manager of the Phosphate Minerals Division. He will supervise from his headquarters in Bartow, Fla., the production facilities in both the Florida and Tennessee phosphate departments. He will report directly to the division's general manager, F. A. Koechlein.

R. H. Linderman

E. F. Perkins

Mr. Bowen has been with International Minerals since 1926, when he started with the Florida department of the Phosphate Minerals Division. He became mine superintendent at the Florida location in 1935 and remained in that position until 1943, when he was named manager of the Tennessee department. In 1953 he was appointed manager of the Florida department.

R. H. LINDERMAN has been named domestic sales manager for the division. In recent years Mr. Linderman has been southern manager of the phosphate sales department. In his new post he will assume full responsibility for the domestic sales department, reporting directly to the division sales manager, S. T. Keel. He will also continue to handle sales in the southern area. Mr. Linderman has been associated with International Minerals & Chemical Corporation for ten years, having begun his work in Montgomery, Ala., in the Plant Food Division. He was transferred to the Chicago office of the Phosphate Division, where he held various positions in the domestic sales department.

EDWARD F. PERKINS, formerly European sales manager for the Phosphate Minerals Division, has been named assistant export sales manager. He will assume managerial responsibilities in the export sales department, reporting directly to the export sales manager, Herman F. Dengler. He will also continue to function as European sales manager. Mr. Perkins has been with International for ten years. He has served the company in Switzerland and London, but since 1953, he has been in the home office.

JOSEPH M. ANGELO has been named northern California district sales manager for the Kaiser Gypsum Company. He will make his headquarters in Oakland.

Officials of the Harbison-Walker Refractories Company have announced the appointment of FRANK WEIR as assistant general sales manager. He had been Pittsburgh district sales manager since 1949.

Mr. Weir has been associated with Harbison-Walker since 1923, having served in a variety of sales positions in New York, Boston, Buffalo, and St. Louis. For the three years before his transfer to Pittsburgh he had been sales manager of the St. Louis district.

Changes in supervision at the Northampton, Pa., plant of the Dragon Cement Company, Inc., are as follows: THOMAS J. HYNES is now superintendent; WILLIAM T. BARRON, assistant superintendent; FRANK J. ANDERSON, chief chemist; and EUGENE MILHAM, assistant chief chemist.

Adam M. Wyant

ADAM M. WYANT has been appointed assistant secretary of the National Gypsum Company.

Since joining the company in 1946 Mr. Wyant has served as assistant in the division of plant labor relations and as administrative assistant in the secretary's department. He is a graduate of Lafayette College and the University of Virginia law school. During World War II he served for five years in the Office of Strategic Services, achieving the rank of major.

The following executives in the nonmetallic minerals industry have been appointed to the current Manufacture Committee of the U.S. Chamber of Commerce: MELVIN H. BAKER, chairman of the board of National Gypsum Co.; G. F. COOPE, president of Potash Company of America; and CRIS DOBBINS, president of Ideal Cement Co.

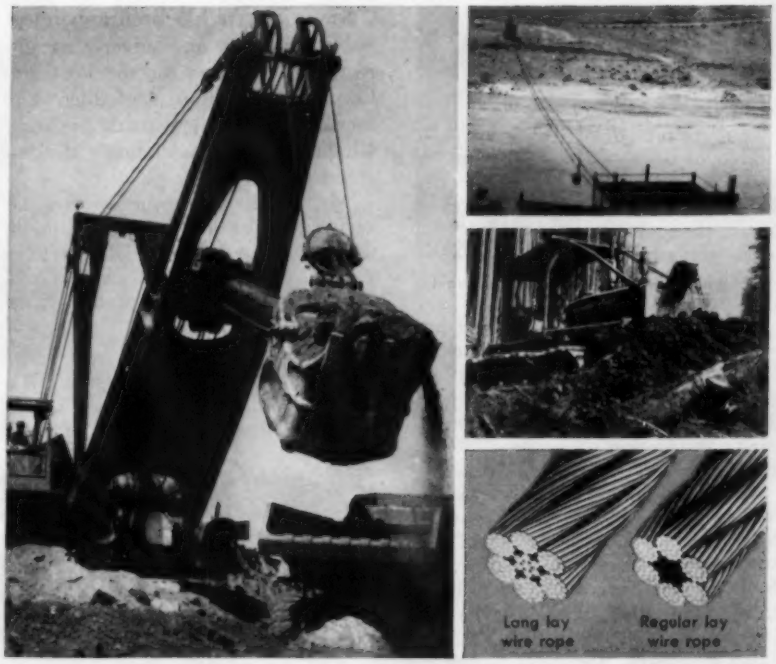
Great Lakes Carbon Corporation officials have announced that KIRK HAZELTON, nationally-known figure in the building materials field, has joined their organization as operations manager of the Perlite Division.

For the last seven years Mr. Hazelton has been general manager of the Cleveland Gypsum Company, and prior to that, he had been engaged in sales, research, production, and field service for such firms as United States Gypsum, National Gypsum, and Certain-teed Products Corporation.

JAMES A. HUNTER, chief clerk at Universal Atlas Cement Company's Minneapolis office, has been named sales manager for the company's Minnesota territory.

LEONARD L. HANK has been promoted to the newly-created position of general production manager in charge of gypsum, paper, and insulations board plants of the National Gypsum Company.

EUGENE W. ODENWALDT was made general production manager in charge of paint, rock wool, lime, asbestos, and metal lath plants; and CHARLES H. DWYER was appointed director of plant industrial relations.



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Look at a length of Lang lay wire rope. Compare it with regular lay. Notice that the *wires* in Lang lay rope twist in the *same* direction as the *strands*. In regular lay rope these directions are opposite.

What does that do? It makes the exposed length of the outer wires in Lang lay rope about twice as long as in regular lay rope. It has extra bearing surface to withstand wear from scuffing, rubbing and other abrasive action. Also, because Lang lay wires and strands are laid in the same direction, the rope has greater flexibility.

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Can you use these benefits? To make sure, ask your Leschen man. Leschen makes all types of Red-Strand wire rope for all types of jobs, and can help select the best one for you. Perhaps you *should* use Lang lay. Talk to him soon.

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HKP

The appointment of JOHN R. KRINGEL as assistant to F. J. Buffington, vice-president in charge of operations, New York Trap Rock Corporation, has been announced by Wilson P. Foss III, president.

John R. Kringel

For the last year Mr. Kringel has been superintendent of Trap Rock's Haverstraw, N. Y., plant. His assignment previous to coming with Trap Rock last year was a three-year construction assignment in Australia.

At the same time, Mr. Foss announced the appointment of EDWARD SULLIVAN as superintendent of the company's Haverstraw plant. Mr. Sullivan has been with Trap Rock since April, 1946. Previously he had been associated with the National Lead Company. He spent two years with Trap Rock's engineering department in field and office work and then went to Haverstraw as assistant superintendent in 1948.

Advancement of MILES PEGUES to the position of assistant director of engineering was announced by John L. Dickson, National Gypsum Company general manager at the Kansas Ordnance plant. Mr. Pegues was formerly facilities section head.

John P. Hayes

Eric F. Grosse

JOHN P. HAYES has been named manager of the newly established National Gypsum Company sales district in Indianapolis, Ind. He was formerly a representative for the company in this area. The new district will include most of Indiana and parts of Illinois and Kentucky.

At the same time ERIC F. GROSSE, National Gypsum representative in Denver for the last six months, was appointed manager of a new district including Colorado, Arizona, and parts of Montana, Nebraska, New Mexico, and Wyoming. The district sales office is in Denver.

STARR SMITH has been appointed public relations and advertising director in Alabama for the Portland Cement Association, according to a recent announcement made by Felix Chapman, the association's district engineer.

Mr. Smith was formerly news director and assistant commercial manager for radio station WJRD in Tuscaloosa, Ala. Before that he had served on the editorial staff of *The Mobile Press Register*.

Penn-Dixie Cement Corporation officials have announced the appointment of ALMER F. MOORE to the position of manager, Service Bureau, succeeding JOSEPH H. CHUBB, retired.

Mr. Moore is a graduate of Massachusetts Institute of Technology. He spent several years as research and testing engineer for the Thompson and Lichtner Company of Boston, Mass., and joined Penn-Dixie in May, 1935. Recently he has been assistant manager, Service Bureau.

obituaries

OSCAR H. GOSSWEIN, who at the time of his retirement on October 31, 1952, was technical service manager at Chicago for the Universal Atlas Cement Company, died of a heart attack at his home on January 1.

Mr. Gosswein was a native of LaFayette, Ind., where he was graduated from Purdue University in civil engineering. He was associated in engineering capacities with the Interstate Commerce Commission at Chattanooga, Tenn.; with the Illinois Highway Department at Springfield, Ill.; and with the Parker Washington Company, contractors, Chicago. He joined Universal Atlas in 1917 as a field engineer in the Technical Service Bureau at Chicago and 1926 was promoted to western manager of the bureau. He was made technical service manager at Chicago in 1930 and continued to serve in that capacity until his retirement.

Mr. Gosswein was recognized throughout the Midwest as an outstanding authority on cement and concrete uses. Many of his technical papers on the subject were published. He was a member of the Western Society of Engineers, the American Concrete Institute, the Chicago Engineers Club, and the Chicago Association of Commerce.

RAY H. VOGTLI, 67, operator of Ray Vogtli & Sons, a sand and gravel business in Gowanda, N. Y., died on December 28. He was a member of the Empire State Sand and Gravel Association.

WILLIS K. MILLER, 87, retired president of the Granite Sand and Gravel Company, no longer in existence, died recently in Indianapolis, Ind.

WINFRED W. SMITH, 72, an engineer with the Trinity-Portland Cement Division of General Portland Cement Company, Dallas, Tex., died in a hospital of that city after a brief illness.

CHARLES F. LEWIS, former owner of the Watchung Stone Quarry, Watchung, N. J., died recently in a hospital at Fort Myers, Fla.

MARION F. HEARD, assistant plant manager and former chief chemist of Calaveras Cement Company, died in San Andreas, Calif., on December 5, as the result of a heart attack. He was 57 years old. Mr. Heard spent more than 25 years with Calaveras. He also was active in community life, serving as school trustee and leader of Boy Scout activities in Calaveras County.

CHARLES L. RUFFIN JR., 54, president of the Massaponax Sand and Gravel Corporation, Fredericksburg, Va., died at his home on December 28, 1954.

RUSSELL THAYER JR., 72, director of the Whitehall Cement Manufacturing Company, died recently in his home at Haverford, Pa.

FOR A
RECORD BLAST—
explosives research pays off

A hill of hard, seamy granite 65 feet high, 100 feet wide, and 600 feet long, located between two sections of a new highway near South Billerica, Massachusetts, was broken to grade level on August 19, 1954, by the largest single blast ever made on a New England highway construction project.

The mound of granite was leveled by a controlled blast (small photo) of 26,400 pounds of Gelamite® dynamite primed with Hercules® Short-Period Delay Electric Blasting Caps. The excellent fragmentation is apparent in the broken rock pictured above.

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XR55-1

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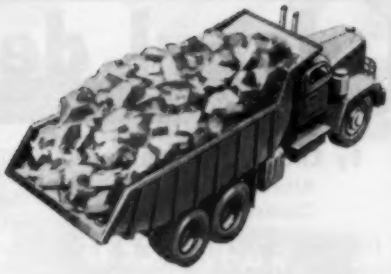

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Cummins new 250 h.p. turbocharged NT-6 can increase yardage per hour by speeding up haulage trucks, shovels, draglines, crawler tractors, and other mining equipment, because it produces greater horsepower without increase in engine size or displacement. Turbocharging—which harnesses exhaust gases normally wasted—produces this extra horsepower by achieving a more perfect air-fuel mixture in the combustion chamber.

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The NT-6 is also available with a torque converter that ups output even more by maintaining power without lugging, stalling, or overspeeding . . . and that reduces maintenance costs even more by eliminating shock loads on engine, machinery, and cables.

For the operator of Cummins 200 h.p. NH-600 models, a Turbodiesel Conversion Package will soon be available which will make it possible to add 50 h.p. to every unit. For further information, see the Cummins distributor in your area, or send us this coupon today.

Turbodiesel Conversion Package for NH-600 models includes turbocharger, new manifold, and gaskets.

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PQ-2

Legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

A few days ago I received a letter from a reader which read substantially, as follows: "In your recent legal article, published in PIT AND QUARRY, you stated that if a purchaser fails to promptly complain to the seller that he is dissatisfied with the merchandise, or that the purchased merchandise does not equal the terms of a guarantee, or the seller breached the sale contract, an unreasonable delay forfeits the right of the purchaser to rescind the contract. I have difficulty now with a seller who breached his guarantee. I do not want to lose any rights to rescind this contract. What I want to know is this: How long can I delay in rescinding this contract while I investigate whether I can locate the same quality of merchandise elsewhere before returning this unsatisfactory merchandise to the seller?"

The answer is: A jury will decide whether or not you rescinded the contract within a reasonable period of time. However, you should notify the seller that the merchandise does not conform with the terms of the guarantee at once. In the meantime you can investigate prospects of securing the merchandise elsewhere. Finally you must decide whether you will demand the seller to take back the merchandise, and refund the purchase price, or whether you will sue the seller for the difference between the purchase price and the present actual value of the merchandise. You may elect between these two courses. However, if you intend to return the merchandise, you should do so without unreasonable delay, unless you can in some manner induce the seller to request you to give the merchandise another trial. So long as the seller continues to approve your giving the merchandise another trial, you can delay rescinding the original sale contract. Otherwise you must promptly rescind the contract.

Cement Puts Out Eye

The higher courts recognize that cement can put out the eyes of a human being. For example, in *Curtis Cunningham Construction Company v. Wright,* 270 Pac. (2d) 315, it was shown that an employee sustained loss of the vision in his right eye by reason of an accident arising out of and in the course of his employment, when the wind blew cement into his eyes while he was pouring cement into a mixer.

The higher court awarded the employee compensation, under the State Workmen's Compensation Act for $2,500.00.

This is a good example of why employers should carry insurance under the State Workmen's Compensation Act. In a recent court an employee sued for damages, and the jury awarded $12,500.00 damages for loss of an eye.

Dust Damages Crops

A few weeks ago a higher court was asked to decide whether a state is liable for injuries to crops resulting from dust deposits on growing plants and crops.

In *Commonwealth v. Moore,* 267 S. W. (2d) 531, a farm owner sued the state to recover damages resulting from deposits of dust on his crops when a contractor was reconstructing a highway.

The higher court refused to award damages, and said: "It is our opinion that the damage caused to appellees (farm owner) was of a consequential nature incident to the prudent and proper exercise of the Commonstate's right to use the property it acquired for highway purposes. Certainly the deposit of dust from normal and proper work upon a highway may be anticipated."

Fair Labor Standards Act

Last month a higher court laid down this law: Employees who are engaged in the "original" construction of a project, not yet but subsequently to be dedicated to channels of commerce or to the production of goods for interstate commerce, are not within the coverage of the Fair Labor Standards Act. In other words, this higher court held that employees are not within the coverage of the

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Fair Labor Standards Act if they are engaged in any work for additions to plants or projects already being used to supply materials or merchandise to consumers who produce goods for sale in interstate commerce.

For example, in *Mitchell v. Chambers Construction Company,* 214, Fed. (2d) 515, the testimony showed facts, as follows: The Chambers Construction Company entered into a contract with the city for the construction of a concrete reservoir which, when completed, would add to and improve the city's water system. In addition to the concrete reservoir, the contract called for the construction of a connecting pipe line from existing wells and reservoirs to the new reservoir. Further testimony showed that the city now is furnishing water to manufacturers engaged in the production of goods for interstate commerce. This means, of course, that regular waterworks employees of the city are within the scope of the Fair Labor Standards Act.

The higher court held that employees of the Chambers Construction Company are not within the scope of the Fair Labor Standards Act, and need not be paid wages and overtime in accordance with the provisions of this law. The court said:

"The appellant (contractor) earnestly contends that the project to augment the city's water supply was no more than an addition to or enlargement of an existing water system to meet its expanding needs, and the fact that it was physically removed from the existing system and was not immediately connected to the distribution system as an integral part of it, was immaterial. And, we are inclined to agree."

Therefore, the law is well settled that employees engaged in the "original" or additional construction of a project not yet dedicated to the production of goods for interstate commerce are not within the coverage of the Fair Labor Standards Act, even though the project, when completed, will be in the channels of interstate commerce or utilized in the production of goods for this commerce.

On the other hand, this court held that workmen engaged in merely repairing, replacing or enlarging an existing interstate facility or plant are covered by the Act.

Law of Independent Contractor

Recently a higher court held that an important test for determining whether a person employed to do certain work is an independent contractor, or a lawful employee is

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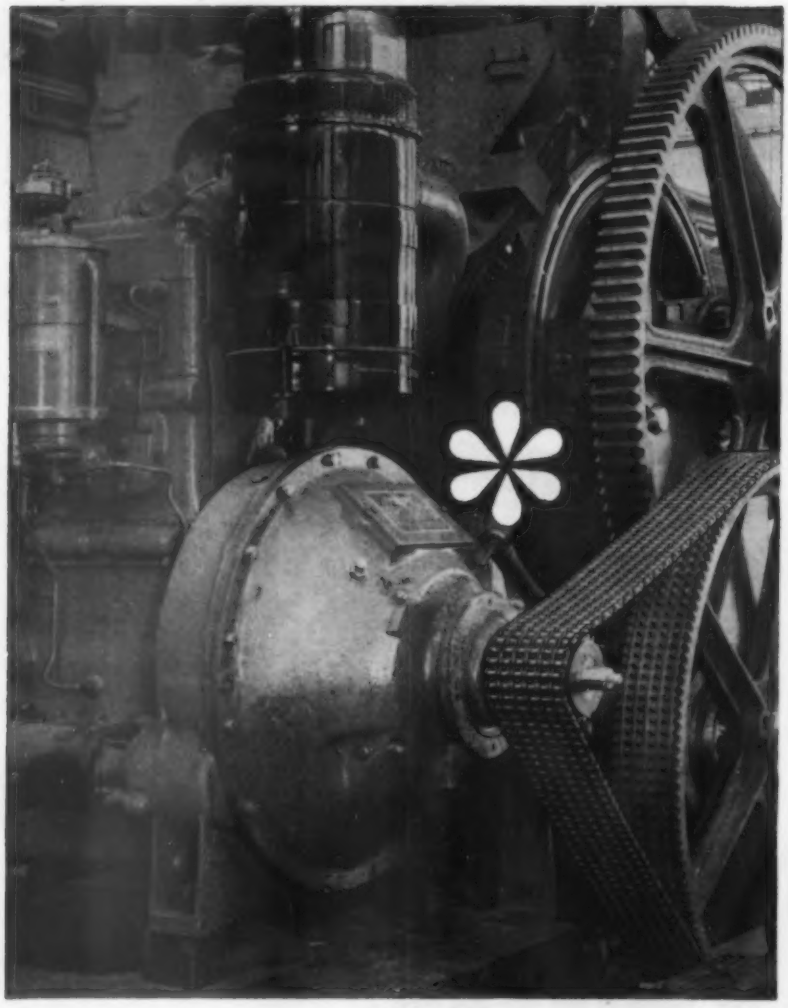

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Twin Disc Power Take-Offs are available with clutches ranging from 6.5" to 24" single-plate; from 11.5" to 24" double-plate. Housing sizes No. 6 SAE to No. 00 SAE. Capacities up to 600 hp. Write for Bulletin No. 129-C.

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whether the employer has the control of the employee and the right to direct his work, and the right to discharge him from the work.

See the late and leading case of *Barr v. Matlock,* 258 S. W. (2d) 540. Here the testimony showed that the owner of several motor trucks purchased gravel in the pit and had his own equipment, foreman and employees loading the 10 or 12 trucks engaged in hauling the gravel.

In subsequent litigation, involving one of the trucks which injured a pedestrian, the higher court held that the truck owner is liable if the testimony shows that the owner of the gravel pit had no control over the truck driver as to when he should come to the pit for gravel, and to whom the gravel should be delivered.

Hence, the law is established that the one who controls and directs a truck driver what to do and where to deliver merchandise is the driver's lawful employer who is liable and responsible for negligent acts of the driver.

For comparison, see *Perin v. Nelson & Sloan,* 259 Pac. (2d) 959. In this case a cement finisher named Perin sued the employer of the driver of a cement truck to recover damages for injuries sustained when the driver backed the truck onto Perin's foot.

The higher court held that Perin can recover damages from the employer of the truck driver, saying:

"In the instant case the uncontradicted evidence shows that plaintiff (Perin) was in a position of danger. There is also evidence to support an inference that he was totally unaware of his danger and for that reason unable to escape."

This higher court, also, explained that if Perin had realized the danger which caused his injury he could not have received damages although he was awarded compensation under the State Workmen's Compensation Act. This is so because an employee who wilfully contributes to his injury cannot expect to recover damages based on negligence of his employer.

Allowable Damages

A reader asked this question: "If a contractor breaches his contract with a materialman for the purchase of materials, what amount of damages must he pay?"

According to a recent higher court a contractor who breaches a sale contract is liable to the seller for damages equal to the profits the seller could or would have earned, if the contractor had not breached the contract.

For illustration, in *Palmquist v. Murphy,* 73 N.E. (2d) 644, it was shown that a county entered into a contract with a contractor for the construction of a building. Thereafter, the contractor signed a written contract with a seller, M.S.C., by which the latter was to furnish all the materials required for the project.

After the seller began to make deliveries of sand, gravel, concrete, etc., the contractor refused to accept deliveries of the materials. The seller sued the contractor for damages.

The court held the contractor liable and said that the basis for calculations of damages, because of contractor's refusal to accept the materials, was the profits the seller lost resulting from the contractor's breach.

In other words, the contractor was liable to the seller for the profits the latter would have earned had the contractor accepted deliveries of all materials purchased under the terms of the contract.

Must Furnish Records

Another reader asked this question: "If a company agrees to pay a land owner a stipulated amount of money per ton for materials removed from the land, how can the land

1-cu. yd. Sauerman Slackline Cableway began operations in 1921.

Company expanded output with this 2-cu. yd. Sauerman Slackline Cableway in 1948.

Minnesota Gravel Producer Gives the Facts on Recovery with Slackline Cableway

Guaranteed Gravel and Sand Co.'s 2-cu. yd. Sauerman Slackline Cableway, installed in 1948, replaced a similar unit of 1-cu. yd. capacity. Combined service of these two machines adds up to over 33 years company experience in the mechanics and economics of underwater recovery with Sauerman Slackline equipment.

Management of the Minnesota operation believes that a slackline has many definite advantages where the inhaul is long and the material is below water. Faster than other types of equipment, the company capitalizes on the slackline's speed over a maximum inhaul of 700 ft., with an average of 250 to 300 ft. A shift can be made in about an hour, if the material suddenly falls off, and it is possible to recover from depths exceeding 100 ft.

Due to the height from which the material is discharged, the slackline cableway readily lends itself to stockpiling. The surge pile can be built to a height of over 60 ft. This makes it possible to operate during periods when the river end of the plant is idle, thus averting complete shutdown such as might well occur if other types of recovery and stockpiling equipment were used.

The present slackline is operated by a Sauerman Roller Bearing Hoist, driven by a 6-cylinder diesel. The 80-ft. mast is so located that the effective height above water level is approx. 95 ft.

Complete details on the above operation were recently published in a leading aggregates producer publication. For full information contact Sauerman Bros., Inc., and request Catalog C., Slackline Cableways.

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owner be certain that he is receiving just payments?"

The answer is: The contract between the land owner and the company should contain a clause requiring the company to supply monthly reports to the land owner.

For illustration, in *Silver Hill Sand & Gravel Company v. Carozza Corporation,* 40 Atl. (2d) 311, it was shown that a company is engaged in the business of mining, washing, delivering and selling sand and gravel. The company entered into a contract with a property owner to pay a certain sum per ton for all sand and gravel mined by it from the land. This contract also contained a clause by which the company agreed to keep all the records of its operations, and to issue statements and account to the land owner each month showing the sand and gravel mined and sold the previous month.

The company breached the contract and refused to render the monthly statements to the land owner, who sued and asked the court to order the company to furnish the monthly statements.

In holding in favor of the land owner the higher court said: "In the case at bar there was an express promise to keep all records and account monthly."

City Refuses to Pay for Materials

A few days ago I received a letter from a PIT AND QUARRY reader who wrote: "Sometime ago I sold materials to a city. Now I have an uncollected bill against the city. The officials refused payment explaining that I did not have a valid contract, because the official who signed the contract exceeded his authority. As the city already used these materials, is it possible the city can refuse to pay me? If so, it seems to me that you ought to prewarn readers of this law so they can avoid similar losses."

This is a good legal question. Few persons realize the risk involved when selling materials to counties, states and municipalities. It is certain that sellers who fail to strictly comply with valid laws cannot collect for materials thus sold.

For illustration, in *Builders Company v. City of Helena,* 154 Pac. (2d) 270, it was shown that a state law provides that supplies, merchandise and equipment for use of municipalities must be purchased by competitive bidding.

The mayor and the city engineer decided that it was advisable to replace 12,000 to 18,000 ft. of the water pipe line. Without obtaining bids from various sellers of water pipe the mayor arranged with a company to supply cement asbestos pipe for the entire project. Later the seller of this pipe was compelled to sue the city to recover the amount due because the city officials refused to pay for the pipe.

The higher court held the city not liable for payment, and said that if it allowed the seller to collect his bill the very purpose of the state law would be defeated.

For comparison, see the leading case of *Bachman v. Iowa State Highway Commission,* 20 N. W. (2d) 18. In this case the higher court held that a state cannot be sued without consent of authorized officials. The testimony showed that a suit was filed by a seller of stone against the State Highway Commission to recover $760.00 The seller proved that the commission had contracted to purchase 1000 cu. yd. of crushed stone for road maintenance. The seller alleged that he furnished the full amount of stone in various piles according to the contract, but before measurements were made the commission hauled a large quantity of the stone and scattered it upon the highway, and that the state owed for considerable stone.

With respect to the suit filed against the state, the court held that the suit cannot be filed or asserted against the state, directly or indirectly, and payment compelled out of state funds, without consent of the proper state officials.

Also, see *Wilson v. Louisiana,* 110 N. W. 1045, where a seller sought to compel payment for materials out of state funds by compelling state officials to audit and approve it, and execute a voucher for its payment. The court said: "It is fundamental that a state cannot be sued in its own courts without its consent."

Therefore, it is quite apparent that a seller cannot sue a state, unless a state law clearly gives individuals this authority, or proper officials give consent.

Statute Strictly Construed

An official of a corporation asked these important questions: "Must contracts for public work always be let to the lowest bidder? If a state law requires that contracts for materials and labor be let by a city to the lowest bidder, is a contract for installation of equipment automatically included in this law?"

Last month a higher court held that in the absence of a constitutional, statutory, or charter provision,

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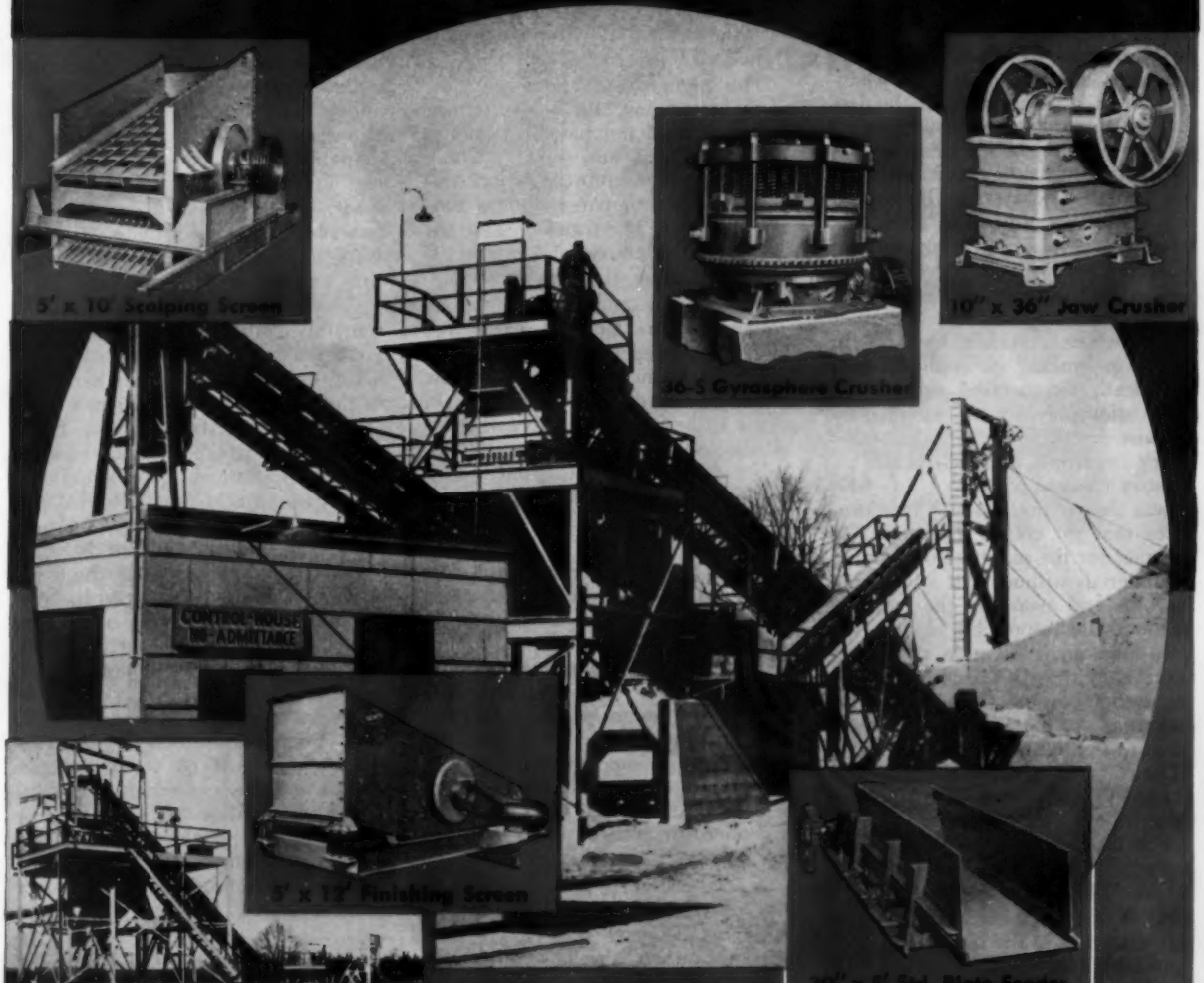

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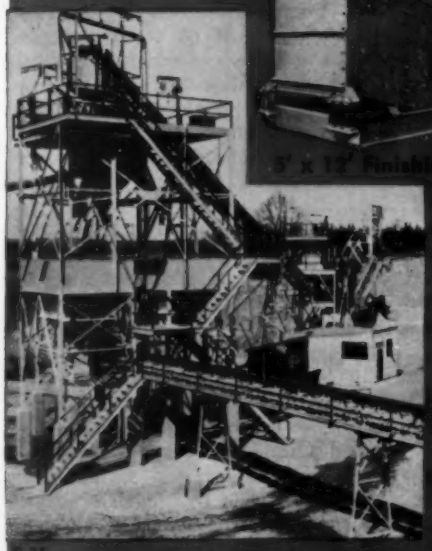

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6-25

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a municipal corporation need not advertise for bids and let a contract to the lowest responsible bidder. On the other hand, these courts very consistently hold that a fundamental purpose of competitive bidding is to deprive or limit the discretion of public officials susceptible to such abuses as fraud, favoritism, improvidence, and extravagance. Any competitive bidding procedure which defeats this fundamental purpose invalidates the contract, although subsequent events establish that no actual fraud was present. Generally, of course, whatever method is adopted in the letting of public contracts, such method may not be pursued in an unreasonable, arbitrary, or capricious manner since the taxpayers are entitled to rely for their protection upon the safeguards which are inherent in whatever method is employed. Nevertheless, such statutes are very strictly construed by the court. In other words, where a statute speaks with clarity in limiting its application to specifically enumerated subjects its application may not be extended by a court.

For example, in *Griswold v. Ramsey County,* 65 N. W. (2d) 647, it was shown that a state law provides that no county may make a contract for the purchase of supplies or materials without first advertising for bids and awarding the contract to the lowest responsible bidder.

In subsequent litigation, the higher court held that the county was not required to award contracts for installation of materials and equipment to the lowest bidder, and said: "The statute is restrictive and should not be extended beyond the language used in it."

For comparison, see *Otter Company v. Village of Elbow Lake,* 49 N. W. (2d) 197, 203, 27 A.L.R. (2d) 906. Here a similar distinction was drawn as to the bidding statutes applicable to villages. There the words "supplies and equipment" were held not to cover contracts for work, labor, or services.

Insurance Company Avoids Payment

Some time ago I received a letter from a concrete contractor as follows: "I read that you said an insurance company can refuse to pay a loss if the insured practices fraud. Please explain this law to me."

Modern higher courts consistently hold that any attempt on the part of the holder of an insurance policy to defraud an insurance company invalidates the insurance policy, and the insured cannot receive payment for any part of his loss. Recently I located a leading higher court case which illustrates this law.

For example, in *Bockser v. Dorchester Fire Insurance Company,* 99 N. E. (2d) 640, the testimony showed these facts: A fire destroyed all of one Bockser's real property, office furniture and fixtures, and some materials. When an adjuster of the insurance company came to see Bockser, an employee of Bockser presented a receipted bill for materials for $17,519.90 which had been increased from $5,200.00.

The higher court held, in view of this testimony, that the insurance company need not pay Bockser any insurance loss, and said: "There were detailed misrepresentations upon a false bill prepared upon a genuine billhead. The fraud of an agent acting in the course of his employment is binding upon his principal."

For comparison, see *Gechijian v. Richmond, Ins. Co.* 298 Mass. 487. Here the holder of an insurance policy knowingly exaggerated the value of his destroyed property in order to be in a more advantageous position to be paid for the real loss suffered. The court held that the insured had made an "attempt" to defraud the insurance company, and said:

"The law is settled that the furnishing to the insurers by the insured of a statement of values that he knows to be false, for the purpose of securing an advantageous position in the settlement of the loss, is a fraudulent design which constitutes an attempt to defraud within the provisions of the standard policies and vitiates the insurance policy even though the insured may not have intended to secure more than his actual loss."

N.S.G.A. Convention

(From page 105)

registration fee, is well organized and attracts a large attendance, he said. This association also works closely with the state highway department by participating in its two-day ready-mixed concrete workshop held annually at the highway department's research center.

The session was concluded with a paper by R. E. Hutchins, secretary, Midwest Ready-Mixed Concrete Association on *The Function of State and Area Associations in the Improvement of Specifications.* In Mr. Hutchins's absence this paper was read by Mr. Feraud. The importance of this subject is often overlooked, despite the ever-increasing action of architects and engineers in specifying details of ready-mixed concrete.

The members of state and area associations are manufacturers of good concrete and must provide delivery service of this material at a price which is equitable to both their company and the owner. Further, they know from experience many things about concrete that the average contractor neither knows or appreciates. In this respect they can assist the designer in getting a superior quality of concrete and at the same time save the owner money. The speaker cited several cases showing that the designer and owner need this specialized knowledge which no other participant in the building operation can furnish. He felt that in some cases the designer loses sight of the true object of specifications—to provide the owner with the best structure he can get for his money.

Another phase of the operation—sometimes mistakenly considered beyond the scope of the concrete manufacturer's attention—is the handling of the concrete after he has delivered it to the job. Mr. Hutchins cited some cases to show that inexperienced workmen, poor handling, and the desires of unscrupulous men have resulted in the failure of otherwise high-quality concrete after it has been turned over to the contractor. State or area organizations can do little to help in such cases, but he feels that proper publicity should alleviate the bad practices he mentioned.

In commenting on this subject, Mr. Feraud discussed his association's experience. He stated that the association was instrumental in having a specification for a big government housing job changed to include a minimum 5-bag mix; this was done because an unscrupulous producer was supplying low-quality concrete and thereby causing the industry to have a bad name. He concluded that specifications *can* be changed if you have the facts to point out the discrepancies in them.

During the discussion following the papers, a number of interesting sidelights were brought out. Announcement was made of a recently published association booklet entitled *Outline of Standard Clauses for Constitutions and By-Laws of State, Area, and District Associations in the Sand and Gravel and Ready Mixed Concrete Industries.* This booklet prepared by Messrs. Feraud (chairman), Clark, Smith, Hutchins, and C. S. McLellan (Texas Aggregates Association), serves as an excellent guide for producers interested in forming a new association.

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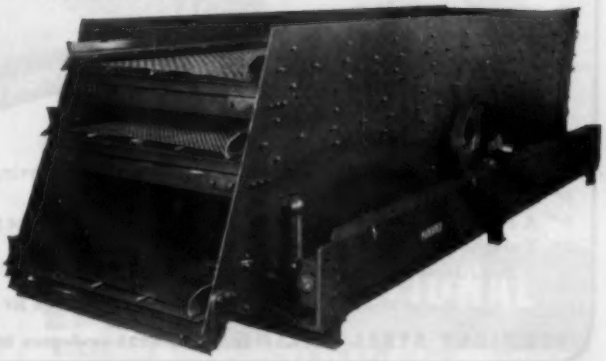

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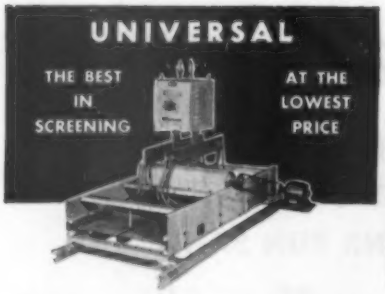

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trade notes

C. C. Smith has been appointed plant merchandiser for the Buffalo plant, Bemis Bro. Bag Co., St. Louis, Mo. and D. G. Chase has been named sales manager for the Buffalo Sales Division. Mr. Smith will be responsible for merchandising products manufactured by the Buffalo plant; Mr. Chase will be responsible for the sale of all Bemis products in the Buffalo territory.

J. T. Trotter has been named sales manager of the multiwall paper bag plant at East Pepperell, Mass. He replaces R. B. LeRoy, who has taken over new responsibilities.

C. C. Cobb has been appointed resident manager of the St. Louis paper specialty plant. He was formerly sales manager for the 3-plant paper specialty organization of the company.

William A. Meiter, central sales manager of the Worthington Corp., Harrison, N. J., has been promoted to general sales manager, succeeding Thomas J. Kehane, who has been appointed vice-president in charge of sales.

Mr. Meiter joined Worthington in 1927. He served as a sales engineer in the Cleveland District sales office, and in 1938 was named manager of the Buffalo District sales office. In 1950 he became central sales manager. He will make his headquarters at Worthington's executive offices at Harrison, N. J.

Clarence S. Wentworth, manager of the Worthington Detroit District

William A. Meiter

C. S. Wentworth

office, has been appointed Central Region sales manager, succeeding Mr. Meiter. Mr. Wentworth started as a service engineer in the Los Angeles District office and subsequently became a general line salesman in the St. Louis office. Then followed 12 years as regional manager, railroad division, in St. Louis and Chicago. In 1948 he became a general line salesman in the Chicago office, and in 1950 was made district manager of the Detroit office.

Paul D. Sullivan, formerly in charge of contractor sales, has been named assistant sales manager of the Le Roi Division of Westinghouse Air Brake Co., Milwaukee, Wis. He will be concerned primarily with promoting the sale of Le Roi portable air compressors and Westinghouse stationary air compressors, both manufactured by Le Roi Division in Milwaukee.

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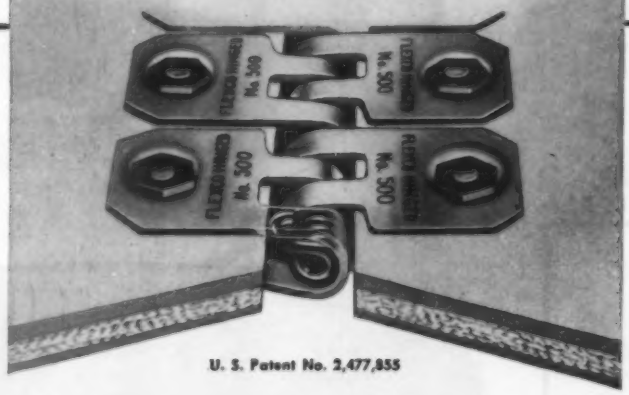

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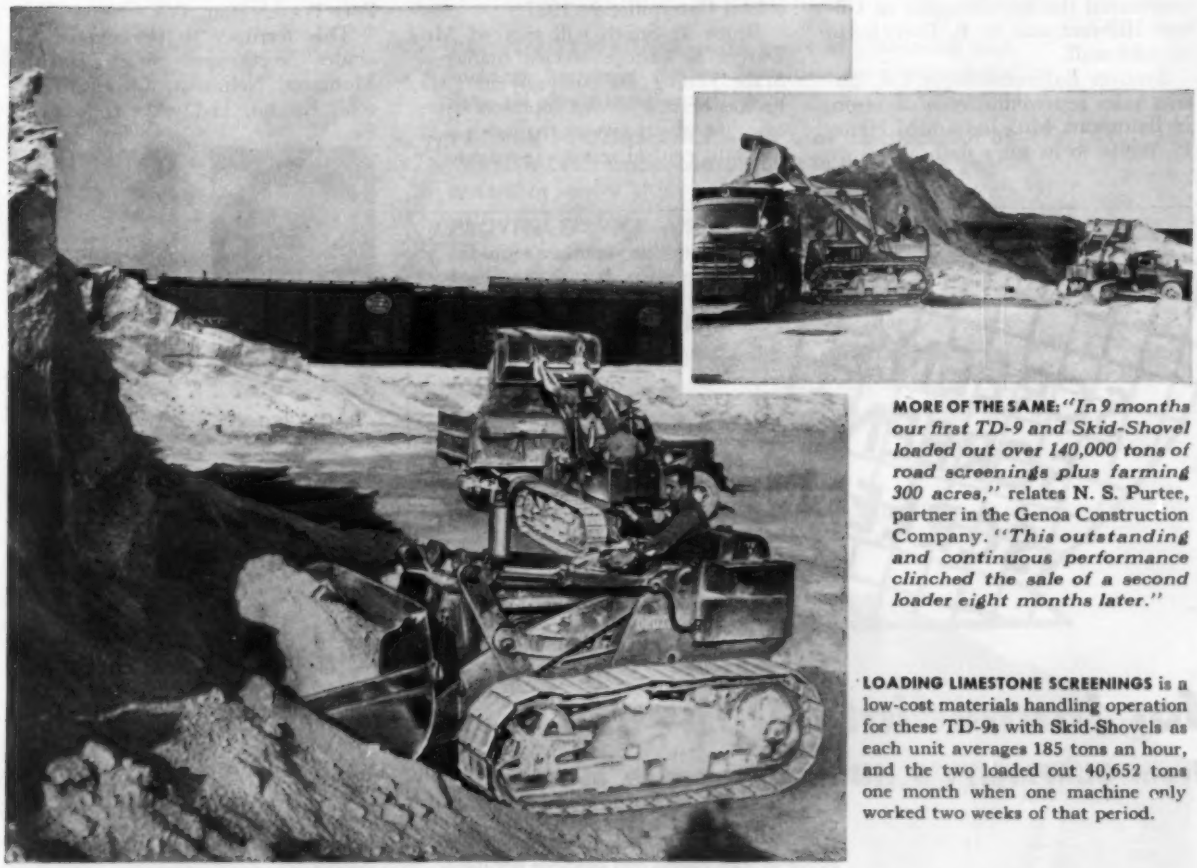

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LOADING LIMESTONE SCREENINGS is a low-cost materials handling operation for these TD-9s with Skid-Shovels as each unit averages 185 tons an hour, and the two loaded out 40,652 tons one month when one machine only worked two weeks of that period.

Ohioan's invitation to salesmen to "show me something better" than his INTERNATIONAL DROTT TD-9 Skid-Shovels is not accepted.

N. S. Purtee, partner in the Genoa Construction Company of Genoa, Ohio, wants the best front-end loaders available to load out road screenings for a new super highway, so he always tells equipment salesmen: *"Fellow, watch my* INTERNATIONAL DROTT *TD-9 Skid-Shovels work and if you have something better, bring it out."*

His standing invitation has not been accepted for several reasons: INTERNATIONAL DROTT Skid-Shovels—all four sizes—have exclusive Skid-Shoes that utilize the ancient lever principle to develop 300% greater pry-out force than competitive loaders.

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William S. Stephens, formerly district construction engineer for the Pennsylvania Department of Highways, has joined the materials-handling department of Syntron Co., Homer City, Pa.

Syntron Chicago Sales Co., representing Syntron in Chicago, Ill., has announced the appointments of Gilbert Hilbrant and R. B. Dietsche to its sales staff.

Syntron Baltimore Sales Co., district sales representative of Syntron, in Baltimore, Md., has added Henry L. Wolfe to its sales staff.

Two promotions in the service department of Caterpillar Tractor Co., Peoria, Ill., have been announced.

Merle W. Dargel has been appointed assistant service manager, a post in which he will give leadership to service engineering, service development, and service publications. He joined Caterpillar in 1937.

Bruce T. Smith will succeed Mr. Dargel as eastern service manager. Since joining the company in 1947 he has been a service representative, assistant plains service manager, and assistant central service manager.

D. C. Kilpatrick has been appointed district representative by the Koehring Co., of Milwaukee, Wis. He will represent Koehring, as well as its three subsidiary manufacturing firms, Parsons Co. of Newton, Iowa, C. S. Johnson Co. of Champaign, Ill., and Kwik Mix Co. of Port Washington, Wis.

This territory to be covered includes North and South Dakota, Montana, Nebraska, Iowa, Minnesota, Kansas, and western Missouri

D. C. Kilpatrick

John E. Mahoney, Jr.

in addition to the Canadian provinces of Alberta, Saskatchewan, and Manitoba.

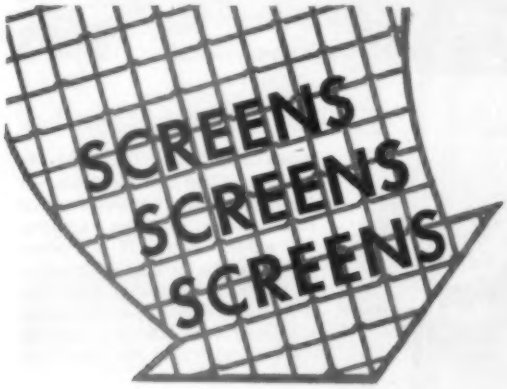
Also announced is the appointment of John E. Mahoney Jr. as district representative for the company's South Atlantic territory. He has been active in various phases of the construction equipment business since 1950. In his new position Mr. Mahoney will maintain contact with distributors in Alabama, Florida, Georgia, North and South Carolina, Virginia, and West Virginia.

Nordberg Manufacturing Co., Milwaukee, Wis., manufacturer of machinery for processing ores and industrial minerals, have recently qualified as an authorized producer of NI-HARD, the trade-marked nickel abrasion-resisting iron developed by the International Nickel Co., Inc.

Frank M. Cashin, manager of the Chemicals Division, has been appointed a vice-president of Kaiser Aluminum & Chemical Corp., Oakland, Calif.

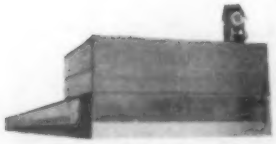
During his 12 years with the company, Mr. Cashin has been closely associated with the rapid growth of the Chemicals Division. He was instrumental in developing sales in the early years, having opened the company's first eastern sales office in 1944, in Akron, Ohio.

The Kaiser Chemicals Division which Mr. Cashin heads has grown rapidly since the company first entered the chemicals field in 1942 to supply magnesia, a basic raw material for magnesium.



for Immediate Delivery

from SIMPLICITY'S HUGE warehouse stock



New SIMPLICITY Screen Plant

SIMPLICITY Woven Wire Screens in a wide range of wire gauges and openings are available for shipment from huge stocks in our warehouses within a few hours after receipt of your order. Edges formed and banded to fit any type of vibrator. Newly expanded production facilities permit fast action on special orders.

FOR COMPLETE DETAILS

Bulletin No. 66

Write today for Bulletin No. 66 describing the complete line of SIMPLICITY Woven Wire Screens. SIMPLICITY Screens are expertly woven and do a fast, accurate job of sizing and separating aggregates of all types. Good abrasion resistant qualities insure long life and dependable service with minimum downtime for repairs or replacement. Phone us for immediate shipment of your rush orders.

Sales Representatives in all Parts of U.S.A.

FOR CANADA: SIMPLICITY MATERIALS HANDLING LIMITED GUELPH, ONTARIO

Simplicity

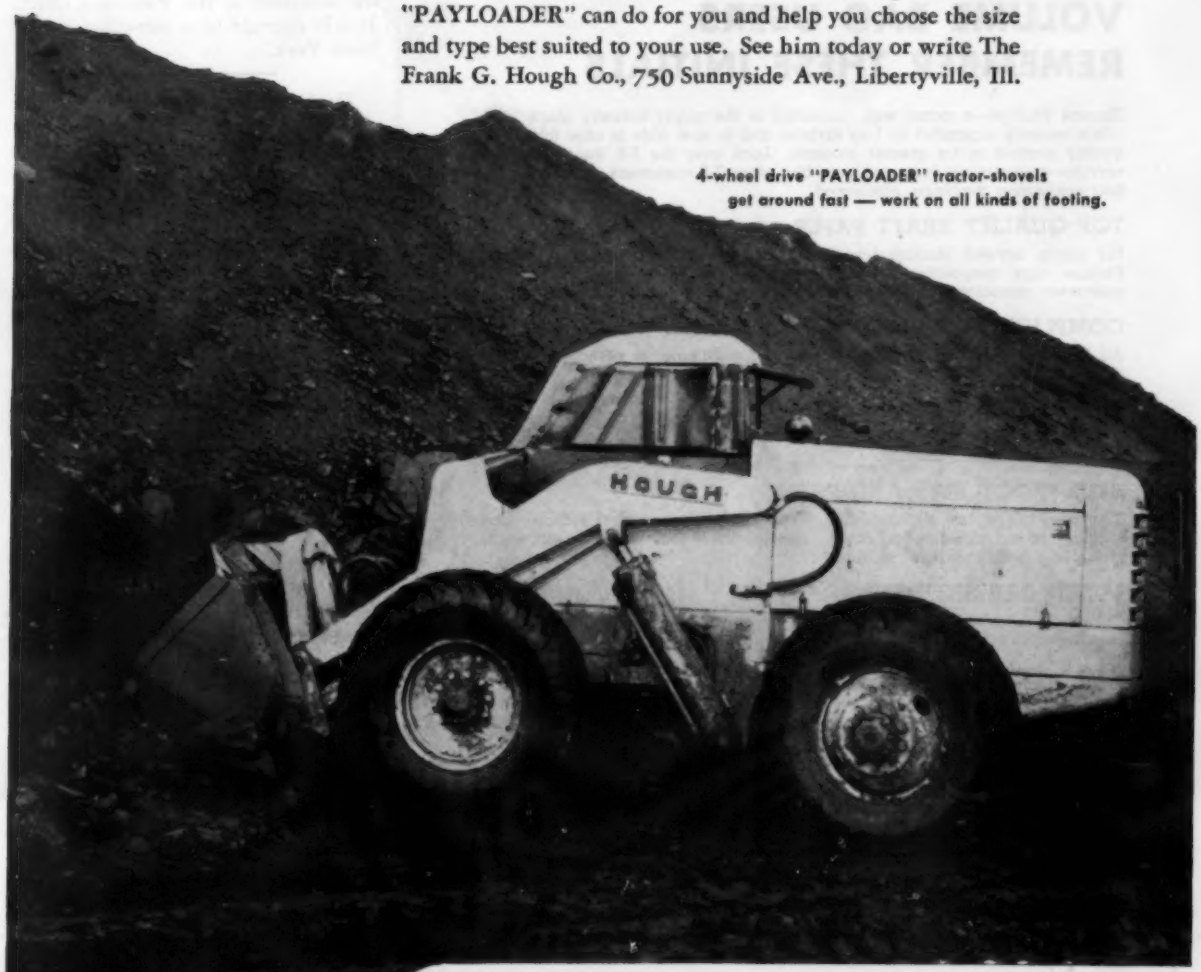
TRADE MARK REGISTERED

ENGINEERING COMPANY • DURAND, MICHIGAN

PAYLOADER®... *the proven tractor-shovel!*

- ***PROVEN EXPERIENCE*** — 34 years of pioneering and building hydraulic tractor-shovels — more experience than all others combined.
- ***PROVEN PERFORMANCE*** — 90% of the thousands of "PAYLOADER" tractor-shovels built in the last 15 years are still in service.
- ***PROVEN SERVICE*** — Some 300 "PAYLOADER" Distributors maintain millions of dollars of parts and service facilities for their customers.

Your "PAYLOADER" Distributor is anxious to prove what a "PAYLOADER" can do for you and help you choose the size and type best suited to your use. See him today or write The Frank G. Hough Co., 750 Sunnyside Ave., Libertyville, Ill.



4-wheel drive "PAYLOADER" tractor-shovels get around fast — work on all kinds of footing.

PAYLOADER®
THE FRANK G. HOUGH CO. · LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

VOLUME BAG USERS REMEMBER THESE INITIALS

Thomas Phillips—a name well respected in the paper industry since 1882—has recently expanded its bag division and is now able to offer this extra quality product in far greater amounts. Look over the T-P line. Compare service—compare product, and you, like other T-P customers, will find your bag packaging problems eliminated.

TOP QUALITY KRAFT PAPER

For years, several leading bag manufacturers have been using Thomas Phillips' rope composition papers in their product, because certain of their customers, acquainted with T-P quality papers, specified their use by name.

COMPLETE LINE ALL TYPES—ALL SIZES

All Standard types—single wall, duplex and multiwall—in perhaps the most complete line of sizes in the industry, 2 lb. to 100 lb.

MOISTURE RESISTANT POLYETHYLENE

A full line of specials for moisture retention or resistance, including polyethylene coated kraft.

SKID PROOF INKS AND PAPER

Thomas Phillips has developed a texture finish paper that reduces bag slipping to an absolute minimum. Special inks, too, were developed to make bag handling safer, easier.

MIXED CAR SHIPMENTS

Thomas Phillips' full line of sizes and types enables you to get all your requirements from a single source in economical mixed car shipments.

For Your Files:

If you purchase bags you'll want a copy of Bulletin TP-54 for your personal file. It gives a full account of Thomas Phillips' many services, and catalogs this most complete line of finer paper products. Send for yours today!

For 85 years a leading supplier of bags to Agriculture and Industry

THE THOMAS PHILLIPS CO., Akron, Ohio

Thomas Phillips COMPANY

Name.....

Position.....

Company.....

City..... Zone..... State.....

Atlas Powder Co., Wilmington, Del., has announced that its New York and Tamaqua, Pa., explosives sales districts have been consolidated. The new sales area, to be known as the Eastern District, will have its headquarters in New York.

James R. Russell, Morristown, N. J., a special sales representative in the New York District since 1950, has been appointed manager of the new Eastern District.

W. C. Manning, assistant director of sales for the company, who was formerly manager of the New York District, will handle specialized sales problems in the New York area. He will continue to make his headquarters in New York.

A. F. Hutcheson, manager of the Tamaqua District, will continue as resident manager there, supervising the activities of the Tamaqua office. It will operate as a sub-office under New York.

D. G. Gibson, formerly assistant district manager, has been appointed district manager of The Timken Roller Bearing Company's Dallas territory, succeeding the late Harry Trump.

Frank G. Siler, who joined Timken in 1950, has been assigned to the Moline office as a field engineer.

Walter H. Feldmann, vice-president in charge of sales of Worthington Corp., Harrison, N. J., for the last four years, has been named executive vice-president of the corporation. He succeeds Edwin J. Schwanhausser, who was elected president.

Establishment of a consolidated sales and service department for the entire line of Marion-Osgood-General equipment in both the domestic and export markets has been announced by Marion Power Shovel Co., Marion, Ohio.

D. E. Rizor, member of the company for 29 years, has been named to head the co-ordinated program as vice-president for sales and service. He previously was vice-president in charge of service, parts and pricing.

Kenneth E. Williamson, Marion-Osgood-General sales manager, small machines, is concentrating his activities in the sale of equipment in sizes of 4 cu. yd. and under through a distributor organization throughout the United States and Canada.

Richard M. Bessom as export sales manager is in charge of sales of the complete line of machines through a worldwide organization of distributors abroad.

AMERICAN UNLOADS TWO TONS OF GRAVEL PER MINUTE

At the Riverside Viaduct in Jacksonville, Florida, an American 300 Series Crawler Crane owned by the Jacksonville Concrete Company has proved a mighty materials mover. With a 50-foot boom, the powerful, easy-to-control American Crane averages 50 tons of gravel in 25 minutes from a gondola to the storage pile above. Top production like this is a direct result of American Hoist's engineering background—over 77 years' building rugged equipment that has handled some of the world's biggest and toughest jobs. This engineering experience has produced such features as American's one-piece, electrically-welded machinery deck. With this unit's permanently aligned anti-friction shaft and drum bearings, gears stay in perfect mesh. Get the complete story on how the American Crawler and Truck Cranes can speed up production for you. Call or write your American distributor, or write American Hoist & Derrick Co., St. Paul 1, Minn.

700-3-26

Appointment of four new distributors has been announced by the Wayne Shovel and Crane Division of the American Steel Dredge Co., Inc., Ft. Wayne, Ind.

The new Wayne distributors and their operating territories are as follows: Dravo-Doyle Co., Pittsburgh, Pa. (western Pennsylvania, Panhandle of West Virginia); Cary Hall Machinery Co., Inc., Salem, Va. (Virginia); Industrial and Farm Equipment Corp., Baltimore, Md. (Maryland, Kent and Sussex Counties, Delaware, and Washington, D. C.); George P. Williams Co., Cleveland, Ohio (northeastern Ohio).

A. L. Morris, at present advertising manager for Dorr, will assume the responsibilities of director of public relations for Dorr-Oliver and, in addition to the usual public relations functions, will be responsible for product and technical publicity. R. D. Forger, now technical assistant in Dorr's advertising department, will transfer to Dorr-Oliver public relations continuing his work in technical publicity.

Headquarters of the new corporation will be in Stamford, Conn., and all those mentioned above will operate from the Stamford office.

Lamar M. Fearing and William S. Snyder have been appointed assistant general sales managers of International Paper Co., New York, N. Y.

Mr. Fearing, son of the late J. L. Fearing, who for many years was vice-president of International, joined the company as an apprentice salesman in 1944. He will concentrate on the sales of the primary grades of paper and paper board manufactured by the company.

Mr. Snyder joined International Paper in 1941, when the company purchased the Agar Manufacturing Corp. In 1945 he was transferred to New York as general sales manager for the Container Division and in 1949 he was appointed general manager.

Euclid-Tennessee, Inc., 720 Murfreesboro Rd., Nashville, Tenn., has been appointed distributor in central Tennessee by Bucyrus-Erie Co., South Milwaukee, Wis.

Martin Vander Laan of 50 Lenox Ave., Clifton, N. J., has been appointed assistant to Elmer C. Salzman, manager of operations of the Engineers Division, Hewitt-Robins, Inc., Stamford, Conn.

Roy Gaddis Jr. has been named assistant general manager of Highway Equipment Co., Inc., Cedar Rapids, Iowa. He will act in an advisory capacity and also assist in sales.

Mr. Gaddis has been associated with the company for the last eight years, working his way through the plant in production, parts, and experimental departments; and for the last three and a half years has had a wide and varied experience in sales.

Roy Gaddis, Jr.

George M. Butters

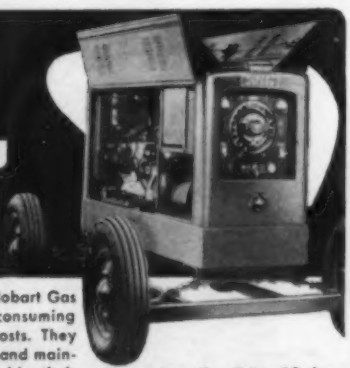
George M. Butters has been appointed works manager of the newly organized Construction Equipment Division of Blaw-Knox Co., Pittsburgh, Pa. For the last 12 years he has been engaged in equipment manufacture and management.

The division will soon begin construction of a modern plant at Mattoon, Ill., to manufacture the complete line of Blaw-Knox road construction equipment. Until the new facilities are completed in late 1955, Mr. Butters will headquarter in Pittsburgh.

The appointment of Robert G. Page as manufacturing engineering specialist for the Distribution Assemblies Department of the General Electric Co., Plainville, Conn., has been announced. He will be responsible for formulating and recommending new and revised manufacturing methods and processes involving the development of plant layout and materials-handling methods, and the recommendation of sources of supply for tools, dies, and other facilities.

George B. Bowers has been named employee and plant community relations specialist for the department. He will be responsible for organizing and maintaining an effective employee and plant community relations program involving salary and wage administration, benefit programs, health and safety, communications, personnel practices, education and training, plant community relations, and union relations.

Speed Up
your work!
Arc Welding
does it BETTER
at LESS COST



Speed up your work and cut welding costs with Hobart Gas Engine Drive Arc Welders. You'll avoid time-consuming breakdowns that delay the job and roll up the costs. They can be used anywhere to fabricate steel or repair and maintain equipment. No need for power—they provide their own. And there's a type and size for every construction job.

For extra heavy duty welding, contractors favor the Hobart DC Gas Drive Welders ranging up to 600-ampere capacity, with many combinations of auxiliary power.

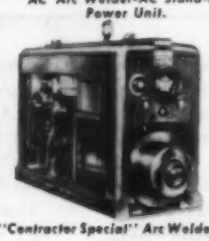
Others like the combination AC Arc Welder and AC Stand-by Power Unit. Welds or powers lights, tools.

Many contractors are standardizing on the 250-amp "Contractor Special." A full capacity 250-ampere welder, compact and lightweight for easy moving from job to job.

Yes, Hobart has an arc welder for every application—check and return the coupon today for complete details!

Heavy Duty Gas Drive DC Arc Welder with many combinations of auxiliary power.

AC Arc Welder-AC Stand-by Power Unit.



"Contractor Special" Arc Welder.

HOBART TROY OHIO WELDERS

----Tear off and MAIL TODAY!----

● HOBART BROTHERS CO., Box 925, Troy, Ohio, U.S.A. Telephone 21223

Without obligation, please send information on items checked.

☐ DC Gas Drive Welders ☐ AC Arc Welder-AC Power Unit
☐ "Contractor Special" ☐ Electrode samples for_____

NAME_____ POSITION_____

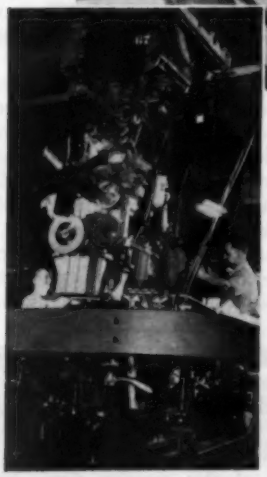
FIRM_____

ADDRESS_____

CUSTOM BUILDING

...the Autocar Feature of Most Benefit to You

Your toughest hauls become easy when you use Autocars, because Autocars are custom-built to meet them. We help you select the proper components for your Autocar . . . the engine, frame, transmission, rear, etc., which will function best for you. A truck built under this system performs on an entirely different plane. Its useful life will be longer, its maintenance will cost less, and you will have to look twice at the figures before you will believe its ton-mile hauling efficiency.



Your Autocar starts down the assembly line with a tag specifying exactly the components recommended for your hauling conditions.

AUTOCAR TRUCKS

AUTOCAR DIVISION OF THE WHITE MOTOR COMPANY, EXTON, PA.

Autocar trucks are sold and serviced throughout the world

Send for the Autocar Fact Booklet. It tells you about custom building and many other exclusive Autocar features.

Autocar Division of The White Motor Company, Exton, Pa.
Please send me the Autocar Fact Booklet.

Name and Title_____

Firm Name_____

Address_____

Type of Operation_____ No. of trucks in fleet_____

24-B

The election of P. O. Peterson as president and chief executive of Mack Trucks, Inc., New York, N. Y., has been announced. E. D. Bransome, until now president and chairman of the board, will continue as chairman.

Mr. Peterson comes to Mack from his position as executive vice-president of Studebaker-Packard Corp. of South Bend, Ind.

Baldwin-Lima-Hamilton Corp., Construction Equipment Division, Lima, Ohio, announces the appointment of Kentucky Equipment Co., Inc., 3611 St. Germaine Court, Louisville, Ky., as distributor for Lima shovels, cranes, draglines, and pull shovels.

Harry C. Platt has been elected executive vice-president of the Engineered Castings Division of American Brake Shoe Co., New York, N. Y. Formerly vice-president in charge of production, Mr. Platt joined the company as a metallurgist in 1942. He served as a metallurgist in various divisions until 1949, when he was appointed vice-president of the Engineered Castings Division. He will continue to be located at division headquarters in Rochester.

J. J. Hite, chief engineer of American Hoist & Derrick Co., St. Paul, Minn., announces the appointment of William Niessen and Kenneth F. Potter to the positions of assistant chief engineer.

Mr. Potter is a veteran employee, having joined American Hoist in 1927. He will be in charge of crawler, rubber-mounted, and rail-mounted cranes and all mechanical design for the company.

Mr. Niessen joined American Hoist in 1940 as an estimating and designing engineer on all types of derricks, revolving cranes, and specialized crane equipment. His new duties place him in full charge of revolving cranes, derricks, hoists, wire rope blocks, electrical, and all structural design of the company's products.

John D. Russell, formerly manager of engineering, Joy Manufacturing Co., Pittsburgh, Pa., has been appointed vice-president, engineering, with headquarters in the Oliver Bldg., Pittsburgh, Pa.

The Ajax Flexible Coupling Co. Inc., Westfield, N. Y., announces the appointment of Howard S. Gans, 608 Transportation Bldg., Cincinnati, Ohio, as sales representative.

J. P. Jung has been appointed regional manager—Southeastern Region, with headquarters at 805 Peachtree St., N.E., Atlanta, Ga., by Cummins Engine Co., Inc., Columbus, Ind. He has been associated with the company since February, 1947, serving 4½ years as assistant regional manager, Great Lakes Region at Cleveland, and for more than a year in the same capacity in the Southwest regional office at Los Angeles.

Mr. Jung replaces R. P. Parshall, who has moved to Milwaukee to take over the Cummins distributorship as president of Cummins Diesel of Wisconsin, Inc.

J. P. Jung

Joseph P. Bradshaw

Joseph P. Bradshaw has been named a district sales manager in the Western Region for the Industrial Truck Division of Clark Equipment Co., Battle Creek, Mich. He will work with J. I. Beicher, Western Region sales manager, with headquarters in San Francisco.

Mr. Bradshaw was a salesman for the Ross Carrier Co. for nine years in the Southwest before the merger of Ross with Clark.

Industrial Brownhoist Corp., Bay City, Mich., announces the promotion of Marshall A. Norby from sales representative to district sales manager of its Chicago office. He succeeds A. P. Lyvers, who becomes consultant on special assignments.

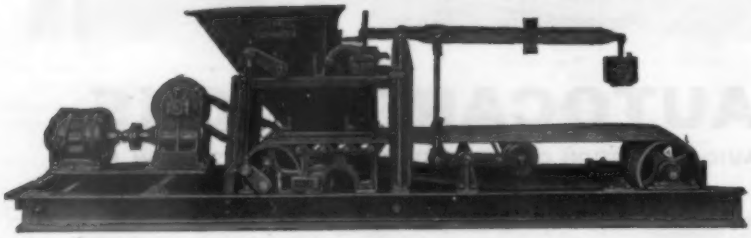
The company also announces the promotion of Richard E. McCoach from sales representative of the Philadelphia office to district sales manager of the Cleveland office. He succeeds J. A. Peppard, who becomes consultant on special assignments.

The name of the Wayne Crane Division of the American Steel Dredge Co., Inc., Fort Wayne, Ind., has been changed to the Wayne Shovel and Crane Division. Formation of this division dates back to 1941 when it pioneered the designing and building of the self-propelled crane-excavator.

For "Top-Level" Scaling Efficiency

SCHAFFER POIDOMETER

WEIGHS
BLENDS
FEEDS
MIXES
RECORDS
PROPORTIONS



OVER 1300 now serving Industry

Write for Catalog No. 5

Wherever bulk materials are handled, the SCHAFFER Poidometer is a "natural" for superior performance in checking and recording weights.

Speedy, accurate, automatic Poidometers help to eliminate production tie-ups and maintain product uniformity.

These finely engineered and durable machines assure steady, high-economy operation.

Available with total weight recorders, and remote control devices for showing and changing feed rate.

SCHAFFER POIDOMETER CO., 2828 Smallman Ave., Pittsburgh 22, Pa.

New *simplicity and sustained efficiency in dust filtering and collection...*

Dualaire*

REVERSE-JET DUST COLLECTOR

Efficiencies up to 99.99%

Cloth filter systems of one design or another have long been used by industry for cleaning industrial gases and/or recovering dust or other suspensions. But three problems are common to such systems... (1) Extreme changes in pressure drop and filtering efficiency as dust cakes accumulate on the filter surface... (2) Wide pressure fluctuations and surges in the plant system as filter units become clogged or are cut out and rapped for cleaning... and (3) Rapid deterioration of the filter material by the vibration, shaking and rapping equipment used for cleaning.

But now the DUALAIRE Collector—as engineered by Western Precipitation, pioneers in the field of dust recovery—provides the answer to these and other problems common to conventional bag-house equipment.

The Dualaire Principle is Simple, Efficient. Basically, each Dualaire filter unit consists of a cloth or felt tube, open at both the top and bottom. (A) Dust-laden gases enter at top of the tube and are filtered as they pass through the side walls of the tube to the exhaust system. (B) Dust particles collect on the inside of the tube and before the cake builds up sufficiently to affect filter operation, a tubular blow ring (C) automatically starts moving up and down the outside of the filter cylinder. A jet of air, concentrated by this blow ring, reverses the normal gas flow at the point contacted by the ring, thus jetting the dust layer off of the inner surface of the filter tube.

This jetting action is further assisted by a flexing of the filter cylinder as the blow ring passes, thus cracking and loosening the dust layer from the inner surface, from where it drops to the recovery chamber below the bottom of the tube.

The entire operation is positive and simple. The blow ring starts its action *automatically* as soon as the dust layer causes a pre-determined pressure differential. And after the filter surface is cleaned, the blow ring *automatically* stops.

6 ADVANTAGES OF DUALAIRE DESIGN...

PRESSURE DROP remains uniformly low at all times because the dust is removed continuously in *small portions.*

FILTERING EFFICIENCY remains uniformly high at all times without the "choking" action characteristic of conventional bag-houses. Actual field tests show efficiencies as high as 99.99%!

DUST RECOVERY is in steady increments — not in sudden large "batches" as with conventional rapping systems. Thus the Dualaire eliminates surges and detrimental variations in the plant system.

FILTER ELEMENT has a much longer life because it is not subjected to the stresses of rapping or jarring while being cleaned. Dualaire reverse-jet cleaning action is gentle, yet far more effective.

GREAT SAVINGS are also made in space and the size of installation required. Because each Dualaire filter unit is cleaned more-or-less constantly without shut-down, there is no need for costly standby units — or the complicated switching equipment to cut standby equipment in and out.

BASIC UNITS are "sectionalized" and are available in 5 standard heights. Sections can be bolted together in any desired multiple, providing a capacity range to fit virtually any requirement. As needs increase, add more sections.

There are many other advantages built into the DUALAIRE. *For further details send for this descriptive 12 page booklet. Or contact your nearest Western Precipitation representative!*

WESTERN Precipitation CORPORATION

DESIGNERS AND MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices. 1815 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
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PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

* ® "Dualaire" & "Multiclone" Licensed by H. J. Hersey, Jr.

NOTHING STOPS a mighty Manitowoc 4500!

Not even this solid mass of rugged rock can stop a powerful Manitowoc 4500! Yard after yard — load after load — this mighty of the mightiest keeps right on smashing out profitable tonnage.

It can't be beat as a shovel — handles up to 5½ yards of rock like a handful of peanuts. Single, free-turning tubular stick rolls through saddle and makes digging shocks harmless. Complete diesel operation permits traveling anywhere without a trailing cable or electric supply.

It can't be beat as a dragline — it's "steady as she goes", with a low center of gravity; wide, long crawlers — providing maximum stability for long reaching booms — features that mean full capacity buckets on every dragline job.

The 4500 main machinery is simple, powerful and fast, with only 15 gears and 8 sprockets — no lost motion — less maintenance and easy to service. All these advantages, plus the added power and performance of Manitowoc Torque Converter application.

See and get the facts on Manitowoc before you buy your next shovel or dragline.

MANITOWOC

SHOVELS 1-5 YD. — Speed Crane — CRANES 18-100 TON

Why this crusher shaft doesn't break

● Crusher shafts are bound to flex, no matter what their diameter or what they are made from. This is true of PIONEER shafts as well as those of other jaw crushers.

So what happens? If bearings are rigid and too far apart, this flexing causes them to chip, or even worse, the shaft may break.

But if you own a PIONEER Jaw Crusher, you can forget shaft breakage and bearing trouble. This is because PIONEER engineers have succeeded in designing a shaft assembly in which sealed-in self-aligning roller bearings are placed *less than 2" apart* . . . closer than in any other anti-friction bearing crusher.

This exclusive, patented feature, along with saddle-mounted housings for the outer bearings which prevent wobble and weave, absorbs end thrust and allows the shaft to flex without unnecessary strain.

OTHER FEATURES

Here are more reasons why dollar-for-dollar and pound-for-pound, PIONEER Jaw Crushers are known for the remarkable production and performance standards they have established

1. Overhead eccentric provides force-feed . . . gives double-action crushing stroke and more capacity.
2. Extra-long jaws give more crushing area.
3. Manganese steel jaw plates are reversible . . . work-life is nearly doubled.
4. Crusher can be adjusted while in operation.
5. All-around double-walled, welded steel base is stronger, more rigid, yet lighter than other types.

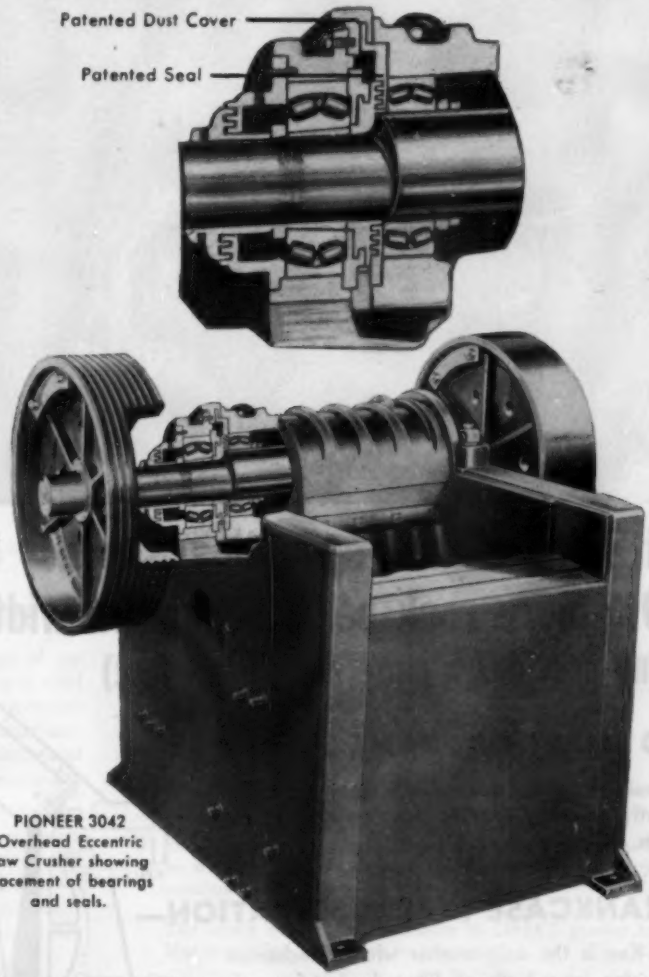
SPECIFICATIONS FOR PIONEER JAW CRUSHER

Size	Capacity (TPH)*	Min. size of product	H.P. required	Approx. weight
4248	230-615	5"	180-210	94,200
3042	150-350	4"	100-130	40,850
2436	125-300	4"	75-100	29,400
2036	95-190	3"	70-90	17,750
1830	60-150	2½"	60-80	13,570
1536	45-150	2"	60-80	17,300
1524	30-100	2"	40-60	11,700
1036	18-90	1"	30-40	11,600
1024	12-60	1"	25-35	7,650
1020	10-50	1"	20-30	6,600
1016†	8-40	1"	15-20	5,425
1016Δ	8-40	1"	15-20	4,950

*Capacities may vary plus/minus 25%, depending on type of material; capacities given are based on material weighing 2700 pounds per cubic yard.
†Roller bearing. ΔPlain bearing.

Ask Your Crusher Salesman These Questions

1. Can crusher be adjusted while in operation?
2. How far apart on the shaft are bearings located?
3. What is the ratio between its weight and capacity?
4. What is the ratio between its cost and capacity?



PIONEER 3042 Overhead Eccentric Jaw Crusher showing placement of bearings and seals.

For details, write Pioneer Engineering Works, Inc., Minneapolis 13, Minn. (subsidiary of Poor & Company, Chicago) or nearest PIONEER Distributor.

Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Subsidiary of Poor & Company • Chicago
Please send information on equipment checked.

☐ GRAVEL PLANTS ☐ WASHING PLANTS ☐ MECHANICAL FEEDERS
☐ ROCK PLANTS ☐ BITUMINOUS PLANTS ☐ VIBRATING SCREENS
☐ JAW CRUSHERS ☐ APRON FEEDERS ☐ BUZZER SCREENS (LIGHT DUTY)
☐ ROLL CRUSHERS ☐ ORO FEEDERS ☐ CONTINUFLO CONVEYORS

Name_____
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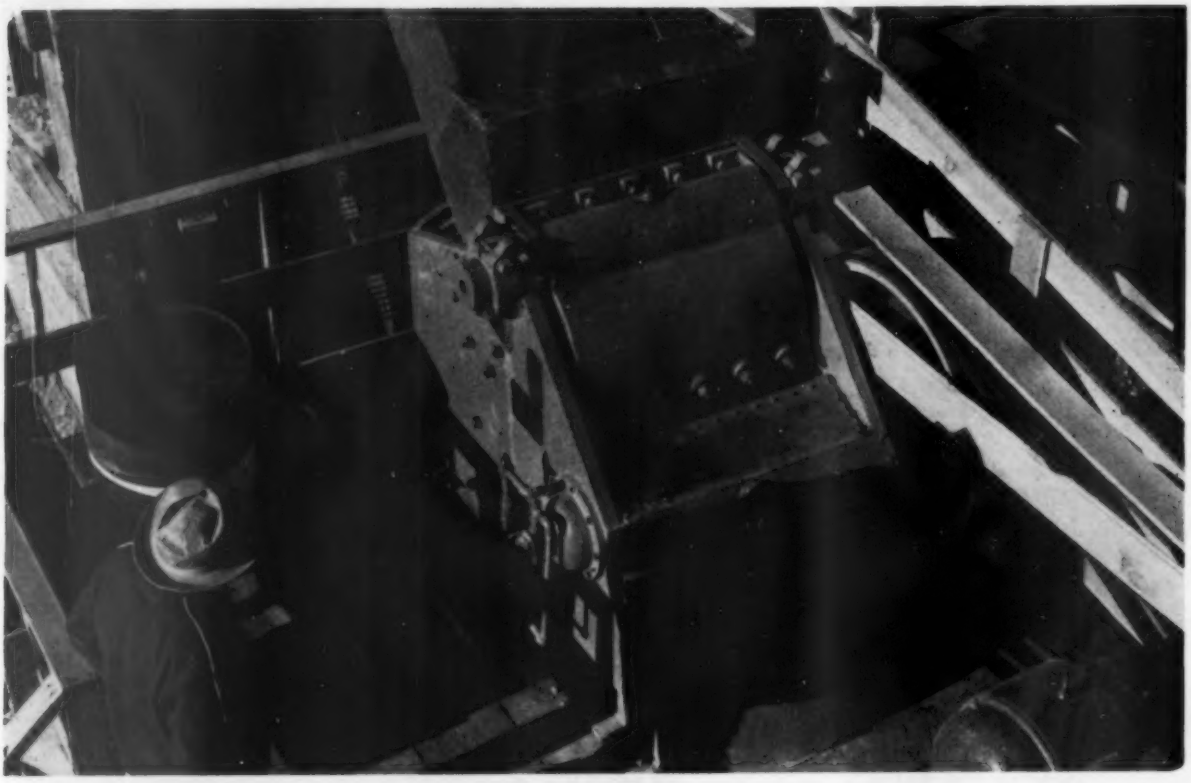
BUY BOTH! HIGHER OUTPUT LOWER UPKEEP

Pioneer *Continuflo* EQUIPMENT

KUE-KEN is the lowest price crusher



With its higher operating speeds, Kue-Ken crushes 25% to 50% more rock per inch of jaw width than any other crusher

(and provides a more cubicle product)

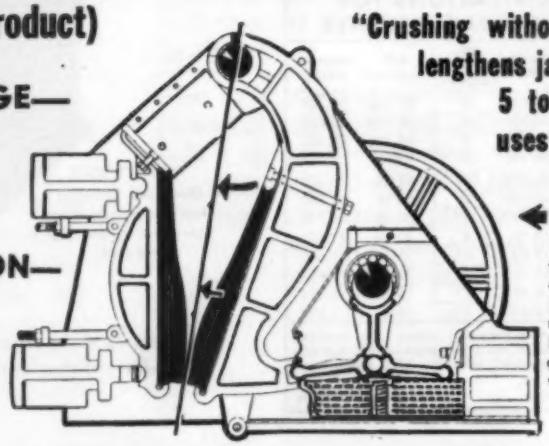
"Crushing without rubbing" lengthens jaw plate life 5 to 10 times... uses less power

NO SHAFT OR FRAME BREAKAGE—

a built-in safety device releases flywheel instantly on overload. No shearing or breaking parts. Quickly reset.

CRANKCASE TYPE LUBRICATION—

Kue-Ken is the only crusher whose mechanism operates in a bath of filtered, dust-free oil. Mechanism is protected from wear for life of crusher. Toggles do not wear out. Change oil twice a year.



See how the Kue-Ken hinge pin is located on the center line of the crushing zone. The jaw moves in an almost straight line. Rock is instantly gripped and crushed without rubbing.

KUE-KEN CRUSHERS

"LOWEST COST-PER-TON CRUSHING"

Jaw Crushers · Gyratory Crushers · Overhead Eccentric Crushers · Revolving Screens
Classifiers · Feeders · Rib Cone Ball Mills · Concentrating Tables · Vibrating Screens

Write for catalogs

STRAUB MFG. CO., INC. 8382 BALDWIN • OAKLAND, CAL.

DEALERS: **LUND MACHINERY CO.**, Salt Lake City, Utah; **CLOSNER EQUIPMENT CO.**, San Antonio, Texas; **WASHINGTON MACHINERY CO.**, Seattle, Wash.; **CONSTRUCTION EQUIPMENT CO.**, Spokane, Wash.; **CONTRACTORS EQUIPMENT CO.**, Portland, Ore.; **GARLINGHOUSE BROS.**, Los Angeles, Calif.; **ANAHUAC MACHINERY CO.**, Mexico City, Mexico; **UNIVERSAL EQUIPMENT CO.**, Vancouver, B. C.

Pennsylvania Crusher Co., Exclusive Licensed Eastern Manufacturer and Distributor, 323 S. Matlack St., West Chester, Penn.
Armstrong Whitworth (Metal Industries) Ltd., Authorized Licensed Manufacturer and Distributor. Close Works, Gateshead-upon-Tyne 8, England

Heat treating gives LIMAS greater strength and longer service life

In the 1500 degree F. circle, formed by this battery of gas burners, is a shipper shaft pinion destined to become a vital part of a LIMA shovel. This heat, the succeeding water quench and controlled tempering process, establishes a uniform hardness up to two inches in depth to the teeth and teeth base of the pinion. This means longer serviceable life to this important part.

Flame and induction hardening are used on rollers, gears and shafts of every LIMA machine. Heat treating, used with our know-how, is one of the reasons why LIMA is known throughout the world for quality—cost-conscious equipment men everywhere are saying, "you can depend on a LIMA for low maintenance and less down-time."

COMPARE QUALITY! No other machine gives you as much as LIMA!

1. Piston ring type dirt seal rings and retainers in crawler rollers.
2. Moving parts are flame or induction hardened for longer life.
3. Main machinery is placed well back of center of rotation.
4. Anti-friction bearings at every vital bearing point.
5. Big capacity drums and sheaves are easy on cables.
6. Propel and swing gears and power take-off are enclosed in a sealed oil bath.
7. Wherever you are, you can depend on skilled service and nearby warehouse stocks of parts to keep your LIMA on the job continuously.

The above advantages contribute to LIMA'S greater output, less down-time and lower maintenance.

COMPARE and you'll specify LIMA for shovels (¾ yd. to 6 yds.), cranes (to 110 tons) and draglines (variable). Smaller capacities available on rubber.

LIMA Type 802 loading rock in Indiana quarry.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

LIMA SHOVELS · CRANES · DRAGLINES · PULLSHOVELS

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Construction Equipment Division · LIMA · OHIO · U. S. A.

ARE YOU SUFFERING FROM A MINUS 50 DEFICIENCY?

For an economical cure use

AUTO-VORTEX CLASSIFIERS

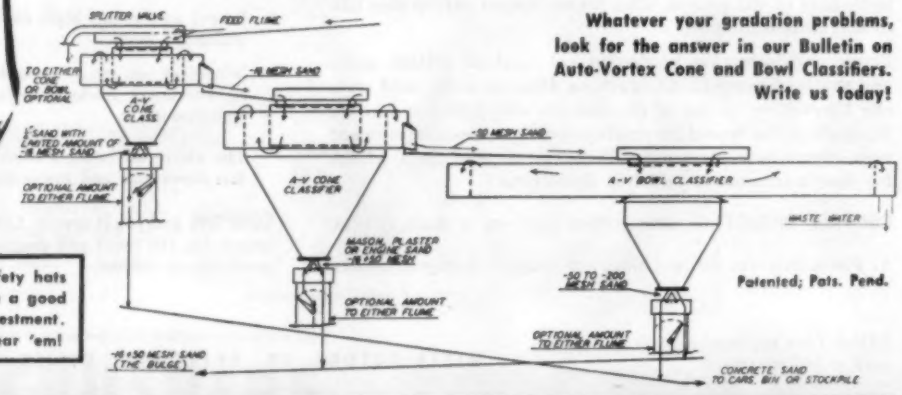
with the *exclusive* Charles E. Wood Company System

If the spots before your eyes are not minus 50 sand, go to your regular doctor. But we're the doctors, if the spots you see are minus 50 mesh sand that is not being caught, or, that is being caught and then is getting away from you. We'll prescribe Auto-Vortex Classifiers . . . not only to catch the minus 50 but to deliver it as a triple value product.

First, it is valuable as salable tonnage. Second, it is valuable in making a close specification product. Third, it is thus not only doubly profitable in itself, but also removes a costly disposal problem. In other words, why suffer the expense of carting it away, when you can save that expense and also sell it at a profit!

In many plants, Auto-Vortex Classifiers more than pay for themselves by recovering minus 50 mesh sand formerly wasted by inadequate settling equipment. Other plants, employing a single A-V Cone, a single A-V Bowl, or two Cones and a Bowl in series, are not only capturing the minus 50 mesh, but also are economically doing the complete gradation job between #4 mesh and 300 mesh with Auto-Vortex Classifiers, including effective elimination of excess middle sizes, and blending to meet exacting specifications.

Whatever your gradation problems, look for the answer in our Bulletin on Auto-Vortex Cone and Bowl Classifiers. Write us today!


SPLITTER VALVE
FEED FLUME
TO EITHER CONE OR BOWL OPTIONAL
-16 MESH SAND
A-V CONE CLASS.
SAND WITH LIMITED AMOUNT OF -16 MESH SAND
OPTIONAL AMOUNT TO EITHER FLUME
-50 MESH SAND
A-V CONE CLASSIFIER
A-V BOWL CLASSIFIER
WASTE WATER
MASON, PLASTER OR ENGINE SAND -16 +50 MESH
-50 TO -200 MESH SAND
OPTIONAL AMOUNT TO EITHER FLUME
OPTIONAL AMOUNT TO EITHER FLUME
-16 +50 MESH SAND (THE BULGE)
CONCRETE SAND TO CARS, BIN OR STOCKPILE

Patented; Pats. Pend.

Safety hats are a good investment. Wear 'em!

CHARLES E. WOOD COMPANY

906 NORTH WATER ST. • MILWAUKEE 2, WISCONSIN

designed with dozing in mind

ALLIS-CHALMERS HD-5
50 belt hp—11,250 lb

In its weight and power class, only the Allis-Chalmers HD-5 crawler gives you a tractor that is new in design and built with bulldozing in mind — with a main frame that is designed for front-mounted equipment, built-in provision for hydraulic pump, reduced front-end overhang, and better over-all balance. That is why the HD-5 does more work in its power range — at a lower cost and with less down time.

BUILT FOR TODAY'S JOBS. The pace-setting design of the HD-5 gives you important margins of safety in power, strength, and balance for longer, more productive tractor life. Each part is designed and built with a new standard of performance to meet today's increased use of tractor-mounted equipment.

BALANCED WEIGHT. The Allis-Chalmers all-steel, welded box A-type main frame eliminates dead weight and permits the weight to be placed where it will add to working strength and to tractor balance. For instance, the strong, heavy truck frames keep tracks in line constantly, contribute to better weight distribution and a lower center of gravity — with improved bulldozing and longer life.

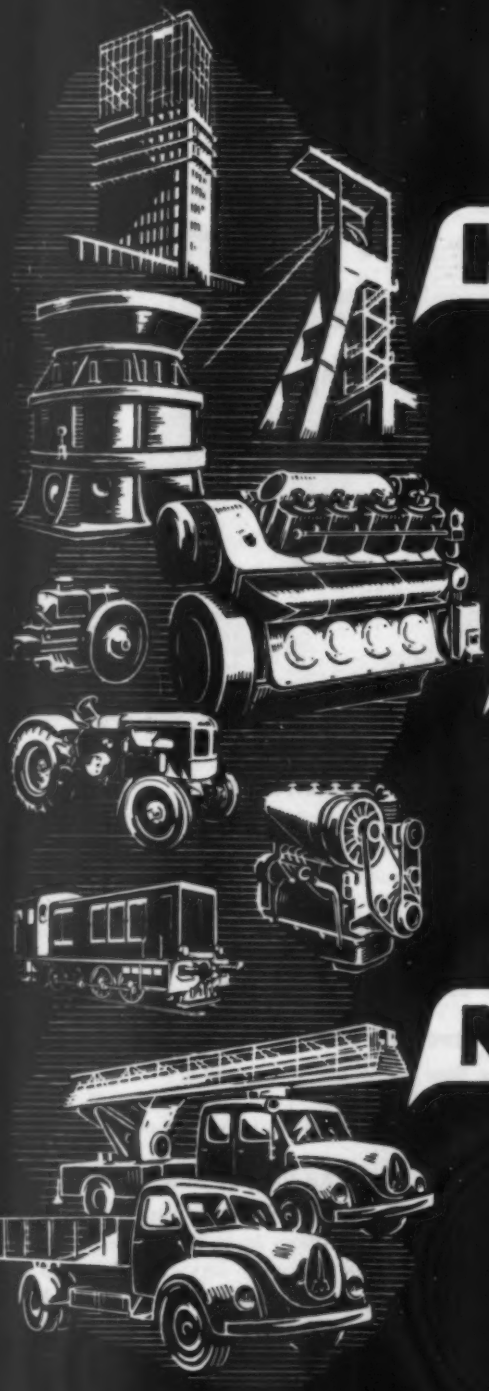
ENGINE-MOUNTED DOZER. The box A-type main frame also permits the use of an engine-mounted dozer, with blade located close to the tracks for improved over-all balance, greater strength, and more accurate blading. This type of construction provides direct down pressure on the blade, eliminates heavy, bulky mountings that clog with material and debris, gives better accessibility for inspection and servicing.

GREATER GROUND CLEARANCE. Double reduction final drives provide ample ground clearance to take advantage of the HD-5's low center of gravity and full traction in mud, soft footing, or rough going.

Plus These Additional Money-Saving Features: *1,000-hour lubrication intervals* for truck wheels, idlers, and support rollers saves time, cuts labor cost . . . *unit construction* for easy servicing, because box A-type main frame makes major assemblies readily accessible for inspection, adjustment, and servicing . . . *operator comfort* second to none, with convenient controls, full vision, easy steering, and simplified shifting.

Write for detailed literature or contact your Allis-Chalmers dealer. He will be glad to demonstrate the advantages of the HD-5.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.



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Mines Equipment, Mineral Dressing Plants, Crushing and Grinding Machinery, Cement Factories, Metallurgical Works, Coal Preparation Plants, Steel Constructions for Buildings and Bridges.

SINCE 1864

DEUTZ

Otto-, Gas-, Diesel-Engines for Every Purpose of Two- and Four-Stroke design, Output range 3-1650 H.P. Cooled by water or air, Diesel-powered tractors, Diesel locomotives, Gas producer plants.

SINCE 1864

MAGIRUS

Trucks and busses driven by air-cooled DEUTZ Diesel engines, Vehicles for municipal services, Fire ladders, fire engines, Fire fighting water trucks, Two-wheeled ladders, Fire fighting equipment.

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Address inquiries from U.S.A., Alaska, Hawaii and Puerto Rico to: DIESEL ENERGY CORPORATION, 143 Liberty Street, New York 6, N. Y. Certain territories open for distributors.

FEBRUARY 1955

THE CONCRETE MANUFACTURER

A SPECIAL SECTION OF PIT AND QUARRY

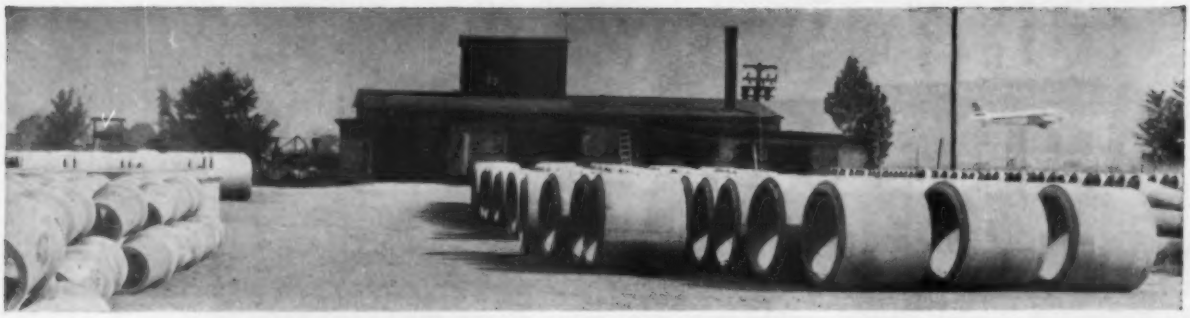
Edited for Producers of

Concrete Building Units

Pipe

Ready-Mix Concrete

In This Group Are 14 Past Presidents of the National Ready Mixed Concrete Association, With the Incoming President and the Executive Secretary, Who Were Feted at the Silver Anniversary Dinner at Miami, Fla. (See Page 156 for Identification.)

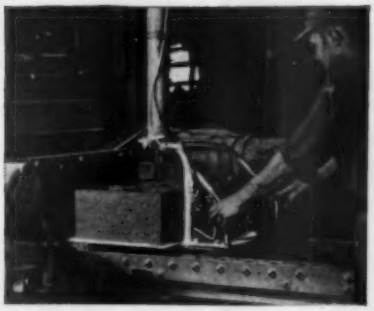


CONCRETE PIPE made with Duraplastic air-entraining portland cement at Montoursville, Pa., Pipe Plant of Concrete Products Company of America (Subsidiary of American-Marietta Co.).

Manufacturers report improved concrete products . . . lower production costs with DURAPLASTIC* cement

WORKMAN REMOVES pallet of four units at Brikcrete plant in Indiana. Owner reports better-looking units with Duraplastic.

SECTION OF 48-inch reinforced concrete pipe made with Duraplastic at the Concrete Products Company of America plant shown above.



WORKMAN LIFTS blocks from machine at concrete-products plant in Ohio. Owner says Duraplastic-made blocks are strong and uniform.

PRODUCTS MANUFACTURERS of all types of units report decreased production costs and more profit when they make concrete products with Atlas Duraplastic air-entraining portland cement.

They find that Atlas Duraplastic cement reduces the number of culls and rejects... minimizes breakage in the handling of green products. Duraplastic-made mixes are "rubbery" and cohesive... hold together well and feed easily through machines.

What's more, Atlas Duraplastic combines this outstanding economy with increased sales appeal. Products are cleanly formed and highly resistant to the passage of water. Face texture is richer, especially when harsh aggregate is used.

YET DURAPLASTIC COSTS NO MORE... Sells at the same price as regular cement. Requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

OFFICES: Albany • Birmingham • Boston • Chicago • Dayton • Kansas City Minneapolis • New York • Philadelphia • Pittsburgh • St. Louis • Waco

"Thrifty" says: Duraplastic cuts costs and boosts profits. It decreases breakage... reduces the number of costly culls and throwbacks.
"Nifty" says: Sales and good appearance go hand in hand. Customers go for the clean, true edges and richer texture of Duraplastic-made products.
ATLAS®
DURAPLASTIC
AIR-ENTRAINING PORTLAND CEMENT
A UNIVERSAL ATLAS PRODUCT

*"Duraplastic" is the registered trade-mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

CM-D-167

Makes Superior Concrete Products at No Extra Cost

UNITED STATES STEEL HOUR—Televised alternate weeks—See your newspaper for time and station

The CONCRETE MANUFACTURER

February 1955

Co-operate in Census of Manufactures

BUSINESS and industrial enterprises will soon receive questionnaires from the Census Bureau which they will be asked to fill out and return promptly. These questionnaires are for the 1954 Census of Manufactures which will provide much important information not available elsewhere. From this information businessmen will be able to make decisions on present and future problems and policies. They can also use the facts presented for years to come in determining prospective markets, the amount of competition in their own and related industries, the availability of materials, supplies, workers, engineers, salesmen, etc. The information obtained is also valuable to the government in mobilization planning and in other ways, and to trade associations and publications, universities, business advisory services, and others.

These problems are as prevalent in the concrete building units, ready-mixed concrete and concrete pipe industries as they are in any other businesses. The last census of manufactures covered 1947, and these industries have grown so rapidly and changed so much since then that the information on them has long since become obsolete. Along with this census there will also be a census of the minerals industries, which was last made in 1939, and a census of business which was last taken to cover 1948 operations. The business census covers retail, wholesale, and service trades. All are mail canvasses.

The Census of Manufactures, which is to cover an estimated 275,000 factories, will include inquiries on plant identification, kind of industry, employment, payrolls, hours of work, cost of materials consumed, power equipment, water consumption, and value of products shipped. All reports are kept strictly confidential and they will be classified, tabulated, and finally published in such form that the operations of no single firm will be revealed. The information submitted is seen only by the Bureau's sworn employees, who are by law subject to severe penalties for disclosure of information that would reveal data on individual operations.

The quality of the census and its value to all depends on the reporting businesses. Accuracy and promptness are important. Any obvious inaccuracies and any delay in returning the completely filled-out forms will necessitate expensive followups and personal calls. The law requires reply to the census questionnaires within 30 days after receipt, and anyone failing to do so will be subject to fine or imprisonment.

All manufacturers are urged to co-operate fully in this census. It is also suggested that those who do not have adequate records of their businesses prepare them at once, so that they will be able to fill out the forms quickly and accurately when received. Full use should also be made of this valuable information when it becomes available.

Walter E. Trauffer

BESSER

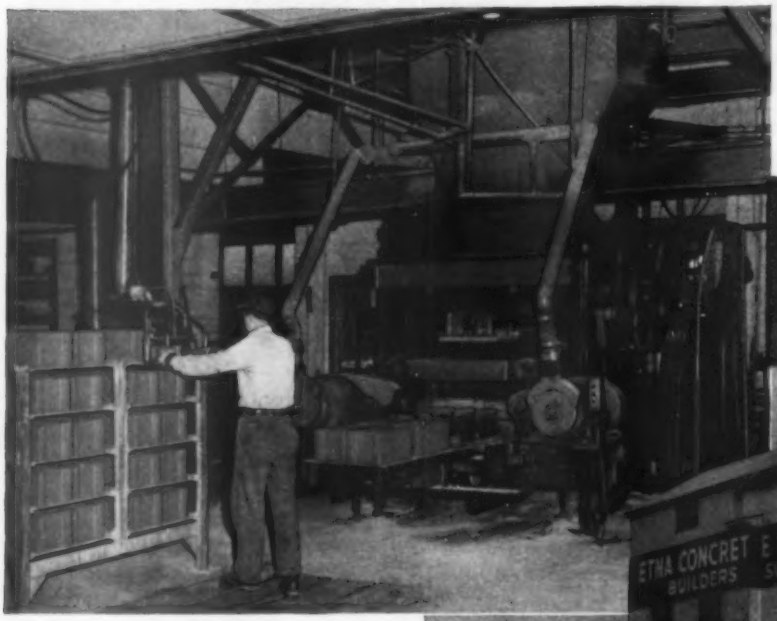
Etna Plant Uses BESSER Equipment Exclusively for Producing Quality Block

At the Etna Concrete Block Company plant near Pittsburgh, the emphasis has always been on QUALITY. That's why Etna has always used BESSER machines.

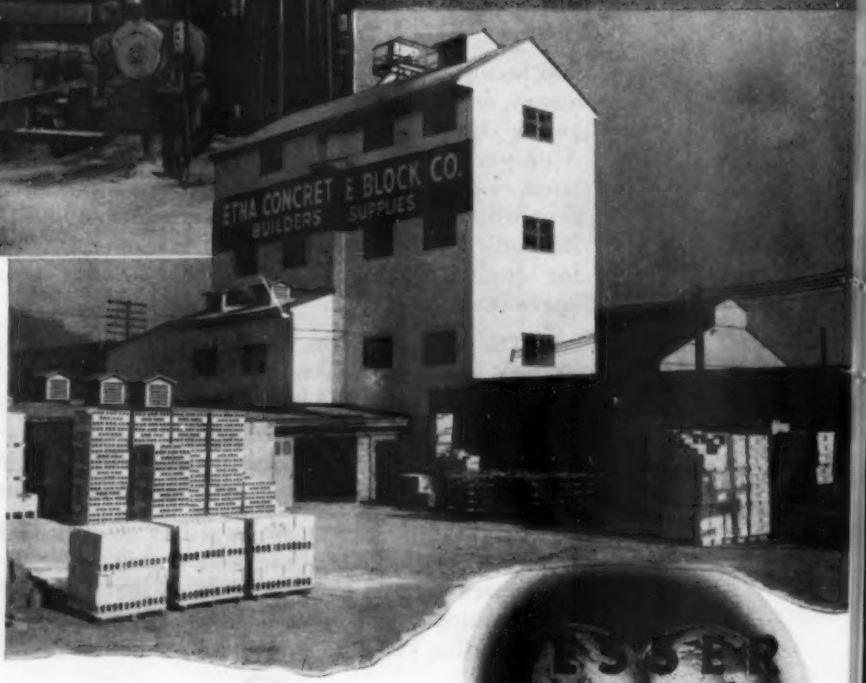
The Company started to manufacture block in 1918 with a Besser Face Down Block Machine. A few years later they added a second Besser Face Down Machine. In 1947, Etna installed a modern VIBRAPAC and this machine is still giving excellent service. Current production runs to 1,200,000 units (8" or equivalent) annually. About 75% is used for the construction of homes.

Charles Turcic, General Manager, states: *"We have used only Besser Equipment since starting in the block business and have found nothing to compare with it in all these years"*. Although competition is keen in Pittsburgh area, Etna easily meets competition with Besser Equipment.

Officials of the Etna Concrete Block Company, Etna, Pa. Charles Turcic, owner, flanked by his son, Charles A. Turcic, Jr., and Tom Banjavcic, plant superintendent.



Besser Vibrapac operating day-in and day-out at the Etna plant. The company reports virtually no down-time. The machine is fully automatic. Hand labor is reduced to pushing a switch button and guiding a power off-bearing hoist.

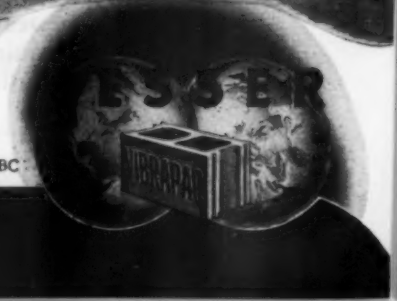


Yard scene at Etna plant. Stock piles are low because of the big demand for Vibrapac Block.

BESSER COMPANY
BOX 131 • ALPENA, MICHIGAN, U. S. A.

Complete Equipment for Concrete Block Plants

A 8200-1PBC



news of the concrete industries

Florida Ready-Mix Men Form State Association At Jacksonville Meeting

According to an announcement released by W. J. Hicklin Jr., Capitol Concrete Company, Jacksonville, Fla., a group of producers in his state have formed the Florida Concrete and Products Association.

At a meeting held on January 10 in Miami several plant operators discussed the need for a state organization, and a steering committee was elected to serve as a temporary board of directors. The following *pro tem* slate of officers was elected: president, W. J. Hicklin Jr.; first vice-president, Neilson Jones, Maule Industries, Inc., Miami; second vice-president, Ernest S. Kilgore, Pinellas Concrete Products, St. Petersburg; and secretary-treasurer, Frank Williamson, Holloway Concrete Products, Winterpark. It is hoped that the first annual meeting can be held in April.

Texas Industries, Inc., Buys Alatex Construction Service

The Houston concrete products plant of Alatex Construction Service, Inc., has been acquired by Texas Industries, Inc., according to Ralph B. Rogers, T.I.I. president. Mr. Rogers said that all key personnel will continue to operate the plant as formerly. Wilbur A. Gray is manager.

Alatex, established in 1947, markets concrete masonry units, lintels, joists, roof tile, cement, and other building products. To this line will be added Holiday Hill stone, Ful-Vent windows, Texcrete masonry coatings, and related materials.

$100,000 Plant to Be Built By L. E. Shaw in Nova Scotia

L. E. Shaw, Ltd., Halifax, Nova Scotia, Can., building products manufacturer, has announced plans for the construction of a $100,000 concrete products plant at Dartmouth, N. S. Construction is expected to begin soon.

R. H. Shaw, general manager, stated that the plant marks the completion of a $500,000 expansion and modernization program carried out by the company during the last three years.

Brents Thurmond, 63, died at Russellville, Ky., where he was owner and manager of the Russellville Concrete Products Company.

Coming Events

February 7 and 8, 1955—Columbus. Concrete Short Course, Ohio Ready Mixed Concrete Association. Fort Hayes Hotel.

***February 21-24, 1955—Milwaukee.* 51st annual convention, American Concrete Institute. Hotel Schroeder.**

February 24-26, 1955 — Chicago. Midwest Concrete Exposition, Concrete Contractors Association of Greater Chicago. Navy Pier.

***March 9-12, 1955—Boston.* 47th annual convention and meeting, American Concrete Pipe Association. Sheraton-Plaza Hotel.**

March 14-16, 1955—Buffalo. Annual convention, Autoclave Building Products Association. Hotel Statler.

"Feed 'Em on Concrete!" An Effective Slogan in Iowa

Hog raisers in the vicinity of Dubuque, Iowa, are getting expert advice on how to keep their hogs out of the mud. An arresting roadside sign, a message from the Dubuque Ready-Mix Concrete Company, apparently suggests a solution, for both dietary and dirt-removal problems. (See cut below.)

The 10- by 25-ft. signboard, of Scotch-lite reflective material (readable at night), is displayed successively at six highway locations in the area, 60 days at each spot. Price of one year's showings is reportedly $540. Frank Hardie Advertising, Inc., handled the installation and rotating service. Dubuque Ready-Mix reports that the travelling poster, with its dollar-happy porker and double-entendre slogan, has paid off well in sales of concrete to farmers.

● Concrete advice for hog raisers—an effective way to increase farm sales of ready-mix. It's working in the Dubuque, Iowa, area.

Census Bureau Surveys Business, Mineral, and Manufacturing Industries

In conforming to the measure passed by Congress last year, the Bureau of the Census is conducting a survey of the mineral, manufacturing, and business industries. The survey will cover the activity of the industries during 1954. The new law co-ordinates the national business and industrial canvasses.

The Census of Manufactures, to cover an estimated 275,000 factories, will ask all industrial establishments for data on the kind of industry, plant identification, employment, payrolls, hours of work, cost of materials consumed, power equipment, water consumption, and value of products shipped. Product and materials inquiries will vary according to each industry. More than 200 different report forms have been prepared.

The Census of Business will cover approximately 3,000,000 retail, wholesale, and service establishments. Inquiries to be made will include location, kind of business, corporate relations, employment and payrolls, operating expenses, inventories, and total annual sales and credit sales.

The large number of census reports sold attest to the fact that there is a wide demand for the census statistics. Faced with the task of collecting and formulating such an inclusive survey, the Bureau will need the full co-operation of all in the fields covered. The Bureau therefore asks that producers observe these two points: (1) make complete and accurate reports; and (2) return reports to the Bureau of the Census promptly.

All reports are kept strictly confidential. Information will be classified, tabulated, and finally published in such form that the operations of no single firm will be revealed.

N.C.M.A. Announces Winners In First Safety Contest

National Concrete Masonry Association
Certificate of Achievement
Awarded to the employees of
Schuss Concrete Products Company
for operation without a lost time accident
for period ending
July 31, 1954

Certificates of Achievement in Safety were awarded to employees of all accident-free plants in N.C.M.A. safety contest.

THE National Concrete Masonry Association recently announced the results of its first annual safety contest, which showed a marked improvement in the industry's safety record. For the 12-month period ended July 31, 1954, the frequency of accidents occurring in the industry was only 31 percent of the frequency rate in 1946. Nearly 42 percent of the plants enrolled in the contest completed the year without a single lost-time accident.

Contestants were judged on a company basis, and winners were selected from each of three production categories. The Class A award, for plants having an annual production of over 5,000,000 8-in. equivalent units, went to V. Paturzo Bro. and Son, Baltimore, Md. Class B award, for plants producing between 1,500,000 and 5,000,000 units, was won by the Ideal Cement Stone Company, Omaha, Nebr. In the Class C award, for plants with production of less than 1,500,000 units, the winner was the Fischer Lime and Cement Co., Memphis, Tenn. Bronze safety award plaques will be presented to these companies at the national convention in Cleveland on January 27. In addition, a personal gift will be given each eligible employee, in recognition of his outstanding accomplishment in safety. All winners were selected on the basis of man-hours worked, plus production in units.

Bronze trophy awarded to Ideal Cement Stone Company, Class B winner in N.C.M.A. safety contest.

The following companies, which submitted perfect accident-free reports for the year, will receive the N.C.M.A. "Certificate of Achievement":

Adams Concrete Products Co., Ypsilanti, Mich.
Alwine Brick Co., New Oxford, Pa.
Birmingham Slag Co., Birmingham, Ala.
Campbell Supply Co., Marquette, Mich.
Concrete Masonry Corp., Elyria, Ohio.
Concrete Products Co., Plainview, Neb.
Etex Concrete Building Block Co., Longview, Tex.
Fehr Concrete Products, Inc., Eau Claire, Wis.
Felicetti Concrete Products, Niagara Falls, N.Y.
Fischer Lime and Cement Co., Memphis, Tenn.
Fostoria Concrete Products, Inc., Fostoria, Ohio.
M. J. Grove Lime Co., Frederick, Md.
John Haeusser Concrete Products, Inc., Buffalo, N.Y.
O. G. Hanson & Son, Princeton, Minn.
Hay-Con Tile Co., Detroit, Mich.
Hughes Concrete Co., Cushing, Okla.
Ideal Cement Stone Co., Omaha, Nebr.

Save

TRUCK TIME
REJECT LOADS
with IMC
INSTANT
MOISTURE CONTROL
...Gives INSTANT aggregate moisture readings.

The quick-reading dial of the IMC is the key to correct yield, better slump control, and more economical concrete operations.

The Instant Moisture Control, installed in your concrete batching plant, will tell your operator instantly and at a glance what corrections to make in each batch for the moisture in the aggregate. Turn out specification batches consistently. End wasted truck mixer time adding water to too-dry loads, or disposing of rejected too-wet loads. The IMC keeps a permanent record, too, telling you the amount of moisture you have been buying in your aggregate.

Write for further information

STOP CASH LOSSES IN YOUR OPERATION...INSTALL IMC NOW

IMC
INSTANT MOISTURE CONTROL
A DIVISION OF COLORADO PREMIX CONCRETE CO., 1021 W. MISSISSIPPI, DENVER, COLORADO

Better pre-cast concrete products at lower operating costs

with only an ounce or two of low-cost D-40 per bag of cement!

Pre-cast concrete products manufacturers are rapidly discovering the remarkable improvement of product quality that's possible when a little Oronite D-40 is added to the mix. More uniform products with smoother surfaces and greater resistance to moisture penetration result from D-40 mixed concrete. Operating costs are lower too because D-40 makes mold stripping so much easier and quicker and the percentage of rejects goes way down.

Why not talk it over—our experience is at your disposal. Contact the Oronite office nearest you.

ORONITE CHEMICAL COMPANY

ORONITE CHEMICAL COMPANY
200 Bush Street, San Francisco 20, California
30 Rockefeller Plaza, New York 20, New York
714 W. Olympic Blvd., Los Angeles 15, Calif.
20 North Wacker Drive, Chicago 6, Illinois
Mercantile Securities Building, Dallas 1, Texas

Jackson Ready-Mix Concrete, Jackson, Miss.

Jahncke Service, Inc., New Orleans, La.

Janesville Sand and Gravel Co., Janesville, Wis.

Ladd Lumber & Mercantile Co., Pueblo, Colo.

Lloydminster Concrete Company, Ltd., Lloydminster, Alta, Can.

Mitchell Concrete Products, Inc., Mahomet, Ill.

Maples Concrete Block Co., Cohutta, Ga.

Northwest Concrete Products Co., St. Cloud, Minn.

Quartzite Stone Company, Inc., Lincoln, Kans.

Paul C. Riefler, Hamburg, N.Y.

Riverside Block & Supply Co., Inc., Tazewell, Va.

Selma Concrete Products Co., Selma, Ala.

Southern Tier Concrete Products Co., Alfred, N.Y.

Texcrete Company of Alexandria, Alexandria, La.

Western Concrete Products, Inc., Bismarck, N.D.

Willbee Concrete Products Co., Jackson, Mich.

Zaugg's Concrete Masonry, Tacoma, Wash.

MACHINE PRODUCTION *VS.* SLOW, HAND MOLDING

It is understandable why you would want no part in making concrete lintels if you had to produce them by hand tamping in comparatively crude molds.

But with a strictly modern

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on which to produce high quality lintels and sills, a large and lucrative field for additional sales opens up to you.

If the other fellow can sell them at a profit and get repeat business, you can too!

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Florida Leads All States In Prestressing Business

According to Douglas Cone, Prestressed Concrete Institute, Florida now leads the nation in the number of prestressing plants, miles of prestressed bridges, and number of prestressed concrete buildings.

This industry expanded spectacularly during 1954. In the last year seven pretensioning plants were built, and six more are now under construction or in the planning stage. It was stated that before the end of this year nearly every city of importance in Florida will have a prestressing plant.

Business As Usual After Fire At Pioneer Sand & Gravel Co.

Despite a $60,000 fire which destroyed its main garage and virtually its entire ready-mix truck fleet, the Pioneer Sand & Gravel Company, Rice Lake, Wis., was able to continue deliveries the next day by employing two new trucks and one that had been salvaged.

It was reported that sparks from an emery wheel ignited a can of gasoline, which was overturned. Edward Sprague, the owner of the plant, stated that the loss was not covered by insurance. In addition to the vehicles lost, a steam furnace, an air compressor, a steam jenny, welding equipment, and many tools were destroyed. Footings for a new garage were laid a few days after the fire.

Miami Is Site of Building Materials Exhibit Hall

Construction was recently begun on the $10,000,000 Du Pont Plaza Architectural and Construction Industries Center located in Miami, Fla. This largest permanent exhibition hall of building materials in the world is expected to be completed in December, 1955.

The displays of the architect's samples bureau exhibits will occupy 75,000 sq. ft. of floor area, on three terraced levels. Clinton T. Wetzel, president of the bureau, says that the time between the start of construction and completion has been planned for the negotiation and setup of the various displays.

• Correction

It was erroneously reported in a speech by C. E. Wuerpel in our January issue (p. 267) that "type N hydrated lime mortar should always be used for masonry, as it has a higher water-retention value than type S mortar." Actually, the reverse of the statement is correct.

It's SMITH for QUALITY Concrete

You can't find an easier way to assure Quality Concrete than this winning combination—

SMITH TILTER —World famous for mixing controlled quality concrete, at greatly reduced operating and maintenance costs — gives you more yards per truck, per day — and

SMITH AGITATORS — proved in fleet after fleet to charge faster than any other mixer and to discharge even the lowest slump concrete. Now with the 20° drum angle, Smith is the only open end truck mixer that carries TMMB rated agitator capacities.

If YOU want to deliver top quality concrete and still get more yards per truck each day, don't overlook this Smith combination. And remember — with more than TWENTY time-tested models and sizes from which to choose, there is a Smith Truck Mixer tailor-made to fit your requirements.

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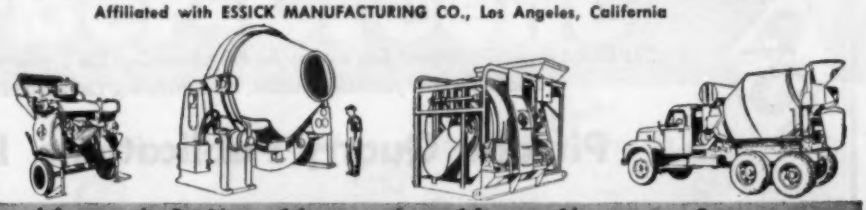

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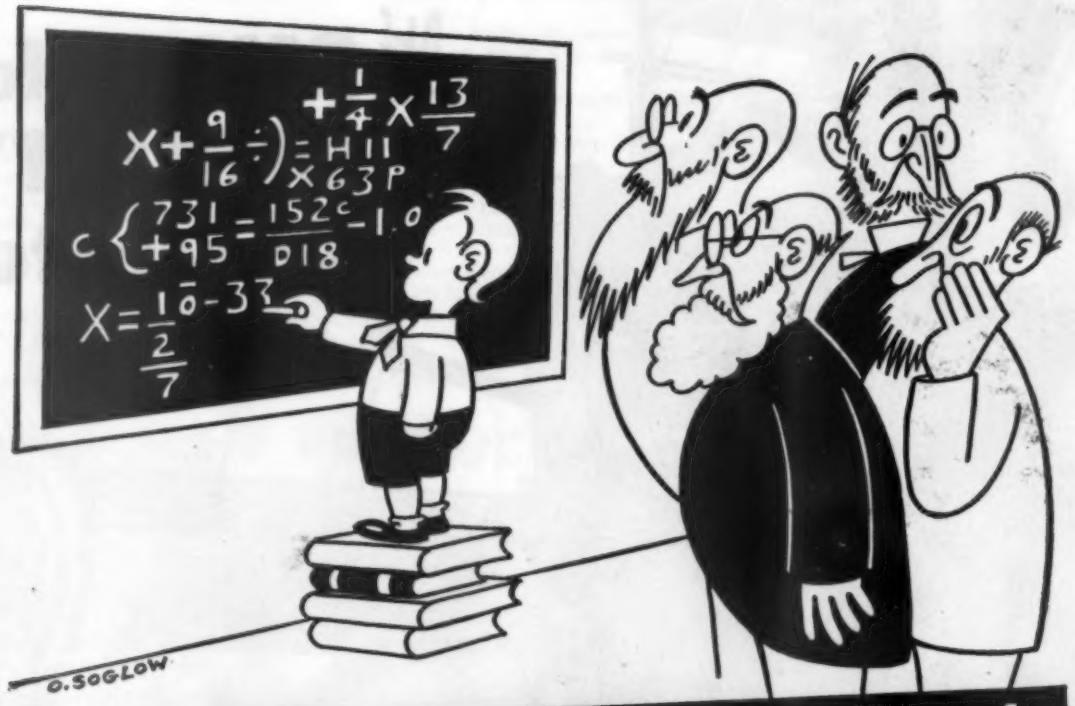

You'll be surprised at these figures!

Thanks to the thrift of employed Americans and the cooperation of 45,000 companies which have enrolled more than 8,000,000 men and women in the Payroll Savings Plan—

- Sales of E and H Bonds (H Bond is the current-income companion piece of the E Bond, sold only to individuals and purchased in larger denominations by executives) in 1954 totaled $4.9 billion, a new peacetime record.

- Sales in 1954 exceeded *all redemptions* in that year of matured E Bonds and unmatured E and H Bonds by more than $400 million—the highest net amount since 1949.

- Cash value of E and H Bonds outstanding reached a new record high of $38.2 billion, a gain of $1.5 billion in 1954.

- This $38.2 billion cash holding by individuals represents 14% of the national debt. Never before has the national debt of our country been so widely held.

These figures, far more effectively than mere words, tell the story of The Payroll Savings Plan—why it is good for America, why it is good for business. If you do not have the Plan, or if you have the Plan and your employee percentage is less than 50%, phone, wire or write to Savings Bond Division, U. S. Treasury Department, Washington, D. C.

The United States Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and

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Model 363 shown with car unloader. Lengths to 35 feet. Capacities to 200 tons per hour. Swivel wheels for radial stock piling. Wide range of accessories, including screens.

MOVE

MOVE bulk materials the cheapest way.

Model 374 shown with flanged wheel for radial stock piling. Available with steel wheels or pneumatic tires. Lengths to 60 feet. Capacities to 430 tons per hour. Wide range of accessories, including vibrating screens.

MOVE sand, gravel, cement, wet concrete, coal, coke, ashes, chemicals — almost any bulk material.

MOVE with machines that are truly portable — easily moved around the yard, or towed on the highway.

MOVE materials continuously with less horsepower, less labor, less cost.

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R/ Ready Mix

By Harry F. Thomson

The Commercial Laboratory Problem

NO other topic will bring forth such general discussion among a group of ready-mix producers as the performance of commercial testing laboratories. There are undoubtedly many well-handled laboratories which conduct their concrete testing strictly in accordance with the pertinent A.S.T.M. standards. Unfortunately, there are some who frequently deviate from standard procedure in one way or another, and as a result they submit reports which do not reflect the true quality of the concrete tested. If the latter situation occurs in connection with a producer's concrete, he may be faced with a serious problem involving good customer relations.

Articles in this column have touched on this problem previously, but the following remarks will discuss some specific details of apparently poor handling of testing.

Probably the most frequent departures from standard methods occur in obtaining the sample of fresh concrete at the job, in making the test cylinders, or in handling them prior to delivery to the laboratory.

Sampling is covered in A.S.T.M. Method C-172*, which requires that the sample shall be taken at three or more regular intervals throughout the discharge of the entire batch of concrete, and shall consist of at least 1 cu. ft.

Making and curing compression test specimens is covered in Method C-31, which provides such details as using a cylinder mold which is perfectly round and non-absorbent, placing the concrete in the mold in three layers, and rodding each layer 25 times with a ⅝-in. rod having a round end. If the sampling and molding are done by a representative of the commercial laboratory, it is expected that he performs these functions correctly and does not obtain samples from columns, beams, or walls, an incorrect practice for an acceptance test. (Incidentally, three cylinders are required to constitute a "test", not one or two.)

If the job cannot be reached conveniently by a laboratory man, the arrangement with the laboratory frequently permits job personnel to take samples and make cylinders. In such cases these functions should be carefully supervised, as it is not adequate for the superintendent or foreman to tell the nearest laborer to "make a cylinder". The workman might merely hold the mold in the stream of concrete being discharged from a truck, or he might scoop the sample from the forms, or he might rod the specimen with any handy stick. It should be kept in mind that almost anything done to a specimen which is not in accordance with standard procedure will result in decreasing the compressive strength.

Specific instructions for curing test specimens are also contained in C-31, from which we quote as follows:

"Par. 7(a) During the first 24 hours all test specimens shall be kept in a storage box so constructed and located on the work that its air temperature . . . will remain within 60 degrees to 85 degrees F., or other suitable means shall be used that provide similar temperature conditions." Both of these provisions are violated widely, in such instances as allowing the cylinders to remain without protection from either heat or cold while on the job (covering with wet burlap is better than no protection) and then in not seeing that the cylinders are delivered to the laboratory at the end of 24 hours. Too often the cylinders are allowed to stand around until some one from the job or laboratory picks them up.

It would appear that a description of the history of the cylinder prior to its arrival at the laboratory might well be included in every report of a compression test, even though not required by the A.S.T.M. standards. This history might give such information as the following: who made the cylinder; whether he is considered competent to sample and mold; where cylinder stood and how protected; and approximate ranges of temperature each day on the job. Such information would frequently be helpful in interpreting test results. But laboratories as a rule make no effort to report such data, and some even follow a policy that they do not consider such a procedure within their function; they may contend that they fulfill their mission by indicating the date of receipt of the specimen and the strength observed at a specified time thereafter. Such reports leave the implication that all provisions of A.S.T.M. standards have been complied with, even when that is not the case.

Actually, tests of specimens held on the job longer than one day are not really proper tests and should therefore not serve as a basis for the acceptance of the concrete. But the laboratory people may argue that they should not be expected even to state that the history prior to re-

(*Continued on page* 172)

* This and the other numbered specifications mentioned are available from the American Society of Testing Materials, Philadelphia, Pa. They are also included in Publication No. 47 of the National Ready Mixed Concrete Assn., Washington, D.C., entitled *Specifications and Test Methods for Ready Mixed Concrete.*

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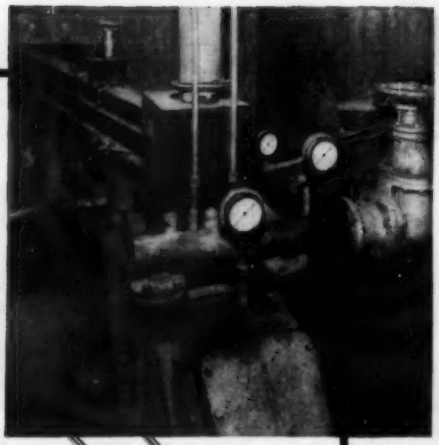

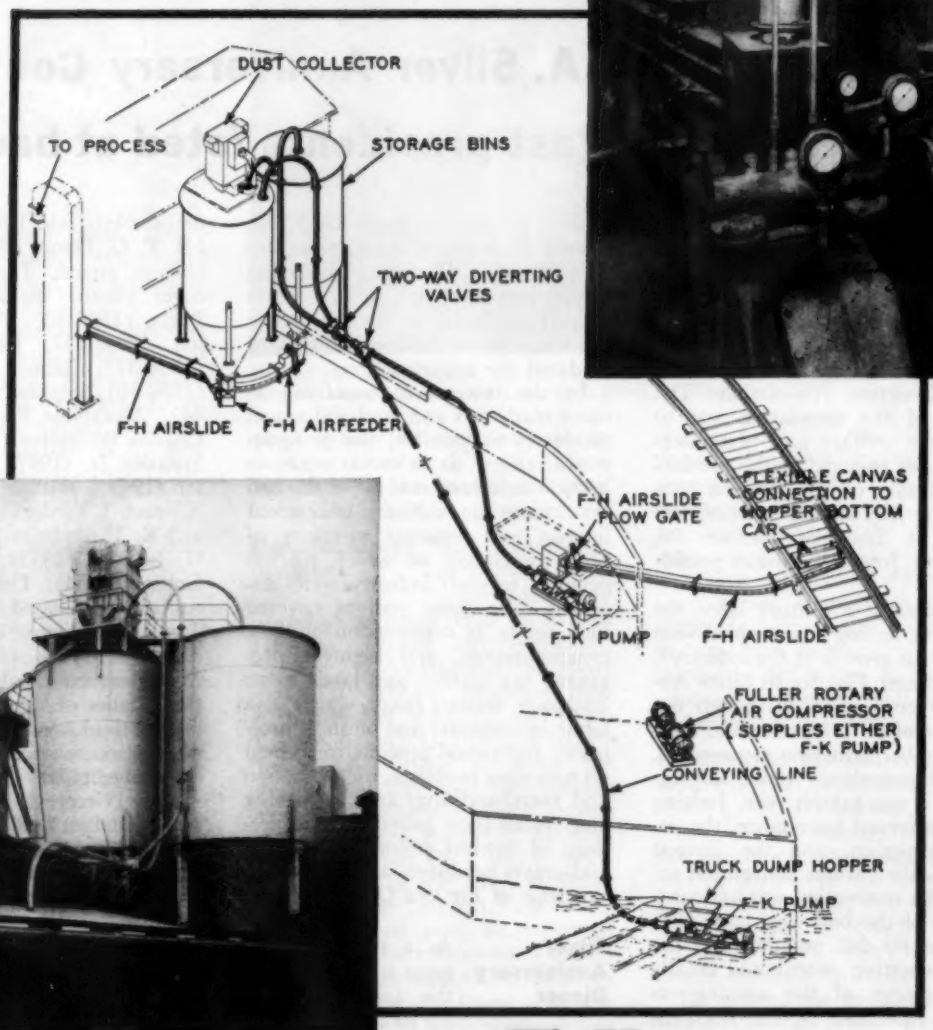

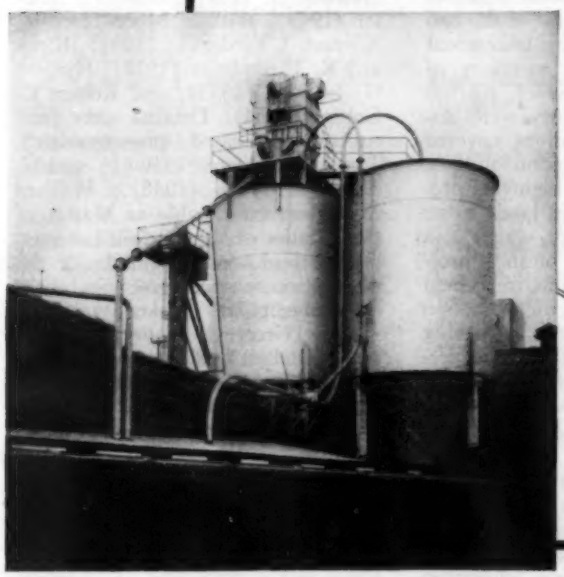

Certain-teed makes certain with **Fuller**

... Unloading and conveying system pays off

A few years ago, Certain-teed Products Corporation decided to find, if possible, more economical methods of operation in its York, Pa. plant. One problem given serious consideration was the handling of incoming limestone and slate filler dust received in bags, requiring costly, manual labor, resulting in breakage of bags with consequent loss of material and a dusty condition in the plant.

Together, Certain-teed and Fuller engineers made studies of their layout and came up with a solution—a combination of the Fuller-Kinyon Conveying System and F-H Airslides.

Two Fuller-Kinyon Pumps are used. One conveys limestone dust from hopper-bottom cars, utilizing the Airslide to convey from cars to the pump located in a pit in the plant. This pump conveys to either one of the two storage bins . . . efficient, clean, rapid transfer from cars to storage. The other pump handles the slate dust, delivered in trucks, also conveying to storage. Withdrawal of either material from storage bins is accomplished with Airslides, which discharge to an elevator delivering to process.

Air for the pumps is supplied by a Fuller Rotary Single-stage Compressor, having a capacity of 482 c.f.m. at 20-lb. pressure. Low-pressure air, for the Airslides, is supplied by a small blower.

It is reported that the savings realized by the use of this Fuller system has paid for the installation in less than two years of operation.

Possibly your materials handling is antiquated and costly, which could be remedied by a comparatively small investment. Why not find out . . . have a Fuller engineer study your operation and submit a report . . . it will cost you nothing, nor obligate you in any way.

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DRY MATERIAL CONVEYING SYSTEMS AND COOLERS . . . . PREHEATERS . . . . COMPRESSORS AND VACUUM PUMPS . . . . FEEDERS

MIAMI—

Scene of N. R. M. C. A. Silver Anniversary Convention

—Past-presidents feted at banquet—

another ON THE SPOT report

A LITTLE over 25 years ago a small group of pioneering ready-mixed concrete producers banded together, and with the help of the National Sand and Gravel Association, formed the National Ready Mixed Concrete Association. The purpose of the association was to protect the welfare and best interests of those engaged in the production and sale of ready-mixed concrete. The first annual meeting was held in St. Louis on January 26, 1931, with Joseph E. Burke presiding.

A quarter of a century later, the association, having grown apace with the fabulous growth of the industry*, met in Miami, Fla., for its Silver Anniversary convention. Although not every one of its 738 active and associate member firms was represented, the total attendance broke all records for a non-exhibit year. Judging from this record attendance, the excellent program, and the interest shown in the various convention activities, the convention was undoubtedly one of the best ever held. Certainly the 80 deg. weather and the luxurious setting contributed greatly to the success of the meeting—as attested especially by the northern producers.

The four-day affair, held in conjunction with the 39th annual convention of the National Sand and Gravel Association, took place on January 10 to 13 at the Municipal Auditorium in Miami. Several hotels located on Biscayne Blvd. in close proximity to the Auditorium accommodated the conventioneers.

In the interest of benefiting as many ready-mix and sand-and-gravel producers as possible, the program was arranged, as in recent years, to include combined sessions of the two associations on subjects of mutual interest and separate meetings of each association at which matters peculiar to each industry were discussed. The joint sessions covered such topics as construction outlook, cement supply, and highway programs; tax matters and labor costs; insurance, welfare funds, wages, and labor agreements; and business prospects. Individual sessions were held on operating problems, on promotion and merchandising, and on zoning and reclamation practices. The sessions of interest primarily to sand-and-gravel producers are reported in this issue of PIT AND QUARRY.

Silver Anniversary Dinner As a tribute to the great strides made by the association during its 25-year history and to the outstanding leadership shown by association's past-presidents, the convention was highlighted by a Silver Anniversary Dinner held on January 12. A capacity crowd of 1,025 persons jammed the auditorium to honor the past-presidents. Only one living ex-president (H. F. G. Pelsue, 1942-43) was unable to attend. Those present (see cover photo) included Joseph E. Burke (1930-32), Harry F. Thomson (1932-35), Joseph L. Shiely (1936-37), James F. McCracken (1938-39), Stephen Stepanian (1943-44), Alexander Foster Jr. (1945), Charles W. Shirey (1946), Frank P. Spratlen Jr. (1947), Robert F. Porter (1949), William Moore (1950), Norman J. Fredericks (1951), Richard K. Humphries (1952), Herbert G. Jahncke (1953), and Robert C. Collins (1954). Tributes were paid to two deceased past-presidents, Joseph H. Dixey (1940-41) and C. "Dolly" Gray (1948). William Moore served capably as Master of Ceremonies of the historic banquet.

A second social highlight of the convention was the greeting luncheon; the guest speaker was Col. H. E. Peirce, O.B.E., J.P., Chairman, Ballast, Sand and Allied Trades Assoc. of Great Britain. Another major social event was the hospitality hour held on two successive evenings, which enabled the conventioneers to mingle and make new acquaintances. This affair, relatively new with the association, met with great success.

Officers and Directors At the opening session, Louis C. Schilling (I. A. Schilling Co., Miami, Fla.) was elected president, succeeding Robert C. Collins. Other officers elected were Robert

*The annual production of the industry is close to three-quarters of a billion dollars, and the industry consumes about 35 percent each of the total annual cement production and total annual commercial sand-and-gravel production.

Past-presidents of the N.R.M.C.A. were honored at the Silver Anniversary Dinner, which was attended by more than 1,000 persons. Back row (left to right): Norman J. Fredericks (1951); Robert C. Collins (1954); William Moore (1950), master of ceremonies; Joseph E. Burke (1930-1932), first president; Vincent P. Ahearn, N.R.M.C.A. executive-secretary; Harry F. Thomson (1933-1935); Charles W. Shirey (1946); Frank P. Spratlen Jr. (1947); and Alexander Foster Jr. (1945). Front row (left to right): Robert F. Porter (1949); Herbert G. Jahncke (1953); James F. McCracken (1938-1939); Louis C. Schilling (1955); Stephen Stepanian (1943-1944); Joseph L. Shiely (1936-1937); and Richard K. Humphries (1952).

Mitchell (Consolidated Rock Products Co., Los Angeles, Calif.), first vice-president; John W. Roberts (Southern Materials Co. Inc., Richmond, Va.), second vice-president; and M. Eugene Sundt (Albuquerque Gravel Products Co., Albuquerque, N.Mex.), treasurer. Named to serve on the executive committee along with the officers, were F. E. Schouweiler, Fort Wayne, Ind.; John B. Donovan, Springfield, Mass.; Henry J. Brown, Oshkosh, Wis.; and Murray A. Simpson, Washington, D. C.

Elected to the board of directors for a three-year term were Edward J. Nunan, Buffalo, N.Y.; Stanley S. Ernst, Detroit, Mich.; J. A. Nicholson, Toledo, Ohio; James R. Farrington, Annandale, N.J.; Eric C. Ryberg Jr., Salt Lake City, Utah; Bert W. Milling, Mobile, Ala.; Joseph A. Bullen Sr., Pueblo, Colo.; and Raymond F. Powell, St. Louis, Mo.

Convention Plans The places and dates of coming annual meetings of the two associations were announced at the joint luncheon on Monday, January 10. The 1956 conventions and their joint machinery exposition will be held February 13-17 at the Conrad Hilton Hotel, Chicago. The 1957 convention will be February 11-14 at the Statler Hotel, Los Angeles. The 1959 convention will be February 15-19 at the Roosevelt Hotel, New Orleans, La. No decision has yet been made on the 1958 conventions and exposition, but tentative reservations have been made at the Conrad Hilton in Chicago for February 9-14. New York is also under consideration because of the new public auditorium being built there. The final decision will be made at the next board meeting.

The 1955 semi-annual meetings of the boards of directors are to be held September 25-29 at The Homestead, Hot Springs, Va. No decision has been made for 1956 or subsequent years, but tentative reservations for October 1-3, 1956, have been made at the Lake Placid Club, Lake Placid, N.Y.

New officers of N.R.M.C.A. are M. Eugene Sundt, treasurer; John W. Roberts and Robert Mitchell, vice-presidents; and Louis C. Schilling, president.

Manufacturers Division The Manufacturers Division of the National Sand and Gravel Association held its annual luncheon meeting on Wednesday, January 12. Executive Secretary Vincent P. Ahearn, President John W. Murphy of N.S.G.A., and President-elect Louis C. Schilling of the N.R.M.C.A. briefly discussed the present meeting and the coming conventions and machinery exposition in Chicago. Robert P. McKenrick (Blaw-Knox Co.), was re-elected chairman of the Division. After reviewing the division's activities during the last year, he expressed pleasure at the effectiveness of the plan of locating manufacturers in two adjacent hotels in Miami and providing producers with advance lists of their locations. The use of a third color badge for distributors was also a big help. It was decided at the luncheon to survey the division members for opinions concerning inside vs. outside show for 1958.

A. C. Thomas, (Jaeger Machine Co.), chairman of the Truck Mixers Manufacturers Bureau, also spoke at the luncheon meeting. He reported that this organization has grown to ten members, that truck mixers are being rerated at a rapid rate to conform to the new standards, and that the 1955 advertising campaign will feature selling quality concrete, in contrast to the 1954 campaign, which was aimed at informing the industry of the new standards. He stated that the 1955 semi-annual meeting will be held in Colorado Springs, April 24 to 27.

President's Address The address of Robert C. Collins (Warner Company, Philadelphia), as the retiring president of the association, was a highly encompassing review of the progress the industry had made, not only during his last year of office, but also throughout the 25 years he has been closely associated with it.

He assured the members that the affairs of the group were being handled capably, that the financial situation was sound, that the employee retirement program was properly financed, and that the insurance program for members had really started to take hold. Membership increased during the last year by 46 active and 9 associate members, making a new high total

Robert C. Collins, retiring president, presenting the Pit & Quarry Class A safety trophy to John T. Gaither, Certified Concrete, Inc., E. Chicago, Ind. →

← H. W. Gerlach, Gerlach Builders Supply, Inc., Topeka, Kans., and Alfred H. Morse, Morse Sand and Gravel Co., Pawtucket, R. I., hold the Pit and Quarry Class C and Class B ready-mixed concrete safety trophies respectively.

of 640 active and 98 associate members. This increase was particularly gratifying to Mr. Collins, in view of the fact that N.R.M.C.A. puts on no membership drive.

He briefly reviewed the last year in terms of volume produced, value, and amount of cement consumed by the industry; the industry achieved all-time records in all three respects. Business had been spotty, he said, some sections having been very busy, while plants in other areas were idle at certain periods for various reasons, mainly because of critical local cement shortages. Competition was keen, and prices declined slightly, according to his report, despite stable or increased labor and material costs. In general, volume had followed the course of the record construction experienced across the country.

Population growth of unpredicted scope, he said, had created a basic demand for this construction, particularly favorable for use of ready-mixed concrete, and for the multi-billion-dollar program of road building planned, in which appurtenant structures offered a similar market of proportions for producers. It appeared to him that within the foreseeable future demand would be such as to insure prosperity for the industry. He felt that there is little likelihood of cement shortages in the future, due to projected plans of most cement manufacturers for the next five years.

He paid tribute to the splendid co-operation afforded the association by the Portland Cement Association, citing several of the films and promotion aids made available to ready-mixed concrete producers by the P.C.A. He also said that great benefit had accrued from the activities of the Truck Mixer Manufacturers Bureau in discussion of mutual problems of both groups. The regional group meetings he had attended impressed him with the enthusiasm exhibited by the producers who were responsible for this very worth-while promotion. It was evident, he felt, that quality of product and service should certainly improve if the program of schooling, lectures, short courses, and types of "self-analysis" meetings were continued.

Two pros in the industry, Harry F. Thomson and Stanton Walker, talk things over.

He reiterated the opinions voiced by other speakers, that unless this appreciation and correction of shortcomings is continually emphasized in the thinking of ready-mixed concrete producers, their industry will shrink and lose prestige.

He related the discussions he had had at the regional meetings regarding the advisability or necessity of formulating escalator clauses in the price of ready-mixed concrete and of the value of some type of sales agreement form, also of the value of maintaining up-to-date equipment selling aids in plants. He said he had urged at every opportunity that producers make the fullest possible use of the association's facilities and its laboratory, and the advice and counsel of its officers.

The tremendous influx of new ready-mixed concrete producers in the industry poses a new problem for each member, he warned. Many of these do not yet appreciate the basic principles of successful operation, and their mistakes will cost all producers money and loss of prestige. To counteract this development, the speaker recommended that the association find some method of licensing ready-mixed concrete producers in order to assure that quality standards are maintained.

In closing, Mr. Collins posed a challenge to the industry—namely its responsibility to produce high-quality concrete. In discussing this challenge he suggested that the ready-mix producer might adopt a comprehensive advertising program, the idea being that the publicity would force producers to adhere to the high-quality standards set by the association. He thought that advertising on a national scale might be advisable.

Luncheon Speaker The joint luncheon of the two associations was held on the opening day, with Robert C. Collins (Warner Co.) as presiding officer. He introduced the guest of honor, H. E. Peirce, O.B.E., J.P., chairman of the Ballast, Sand and Allied Trades Association of Great Britain, as a magistrate, wartime commander of defense for a part of London, a noted cricketeer, a founding member of his association, and managing director of Hall & Company, Ltd.

Mr. Peirce urged closer relationship and better understanding between these two countries, which have so much in common. He compared the position of the United States as the leading nation and creditor, with the place which Great Britain held for about 100 years. No one, he said, loved them (the British), and everyone criticized them. He also described the bloodless revolution in the British Commonwealth which has resulted in self-government for most former possessions, a setup which is more realistic than would have been a continuation of the Empire. According to Mr. Peirce, these two nations must continue to guide the rest of the world and set it an example. After 36 years, he said, Russia has not yet been able to meet its own needs or those of its satellite nations.

T. G. Brown, Cleveland Slag Co., Cleveland, Ohio; Floyd L. Furnell, Lakeland Engineers Association, Lakeland, Fla.; Neil Christy, Marietta Concrete Corp., Hollywood, Fla.; Jack French, Cleveland Builders Supply Co., Cleveland, Ohio; and S. H. Westby, Portland Cement Assn., Chicago, Ill. Mr. Westby gave a talk on promotion aids for the industry.

Safety Awards The opening session was concluded with the presentation of PIT AND QUARRY safety trophies to the winners of the N.R.M.C.A.-sponsored annual safety contest. Winners for 1954 were as follows: Class A—(more than 100,000 cu. yd.)—Certified Concrete, Inc., E. Chicago, Ind.; Class B—(50,000 to 100,000 cu. yd.)—Morse Sand and Gravel Co., Inc., Pawtucket, R. I.: and Class C—(less than 50,000 cu. yd.) — Gerlach Builders Supply, Inc., Topeka, Kans. It was announced that a fourth class would be established for the 1955 contest, namely, less than 25,000 cu. yd., which will enable the small producer to compete for a safety award and trophy.

In accepting the Class A trophy, John T. Gaither, Certified Concrete president, pointed out that safety has played an important part in the improvement of sales, service, public relations, and even labor relations. Partly responsible for the success is the fact that all employees have accepted the role of good will ambassadors for the company.

Certified's safety program includes regular safety meetings, at which insurance company representatives are featured speakers. All employees are invited to take part in the meetings. Safety bulletins, some provided by the insurance companies, are also used extensively.

All new drivers before being hired must pass a "driver's test" at the plant, which is conducted by the garage superintendent. Spot checks are made regularly on all equipment, including lights, controls, etc. Drivers are instructed not to exceed any speed law; thus safe, sane driving is stressed at all times.

Constructive maintenance is considered a *must* in Certified's safety program. Mechanics are employed both during the work day and also on a night shift. Drivers must report in writing anything that he thinks may be wrong with his truck —especially brakes, steering gear, and lights. These repairs are then made by the night mechanic, who signs the report and returns it to the garage superintendent to be checked and filed for future reference.

The Class B trophy, won by the Morse Sand and Gravel Co. for the second time in three years, was accepted by Alfred H. Morse. He emphasized that each producer has a prime responsibility to the public in the field of safety. In discharging this responsibility, he stated that management must initiate a sound, definite safety program and then oversee its operation; it must orient

Robert C. Collins, Warner Co., Philadelphia, Pa., and Arthur W. Hardwicke, Ready Mixed Concrete Ltd., Rio de Janeiro, Brazil.

the workers on any new rules and regulations on safety and must consistently retain a high degree of safety consciousness among the employees, so that safety becomes second nature. He added that although this role and responsibility of management is often difficult, management owes it to the public. He stressed the importance of inviting suggestions from employees for improving safety practices, and then giving due credit to the employee.

H. W. Gerlach, president, Gerlach Builders Supply, Inc., accepted the Class C award for his company. He pointed out that success in safety is highly contagious and depends upon the efforts of the entire organization, not just a few individuals. Management must provide good tools and equipment and safe working environment, and each employee should be his own safety engineer. He emphasized that management should never say "Go ahead this time, we'll take a chance".

Among the facets of his company's safety program, he said, are these: the use of large, clearly lettered, safety signs; equipment in good shape; holding drivers responsible for traffic fines; use of caged ladders in hoppers; and the device of small safety bonuses. Further, drivers are told not to undertake hazards while on the jobsite, in spite of a contractor's order.

Mr. Gerlach also stressed the importance of weeding out the careless or accident-prone men, as well as those engaging in horseplay, since these traits are also contagious.

Business Prospects The panel discussion of business prospects for 1955 brought out the fact that in most territories 1954 was a record year for both the sand-and-gravel and ready-mix industries, and 1955 is expected to be as good, if not better. According to E. Phil Gemmer (Texas Construction Material Co.), who presided at this meeting, these reports really give producers a plan for the future.

Texas — Business in 1954 was about 25 percent over 1953 in south Texas but profits lagged due to overproduction in the territory. In north Texas there was little change from 1953 until the last quarter when there was a sharp rise. Business for both industries is expected to be up in 1955 with several more good years to follow.

Alabama — Both production and sales of sand and gravel and concrete were good in 1954 and prospects for 1955 are excellent for the entire Southeast.

Florida — The entire state of Florida had a good year and in the Jacksonville area demand has increased 100 percent since 1950. The chief cause for concern is the fact

Members of the panel discussing merchandising practices in the ready-mixed concrete industry were (left to right): John B. Donovan; Quentin W. Best, who also served as chairman of the session on promotion and merchandising; Robert J. Hummel; M. Eugene Sundt; and Harold E. Shelby.

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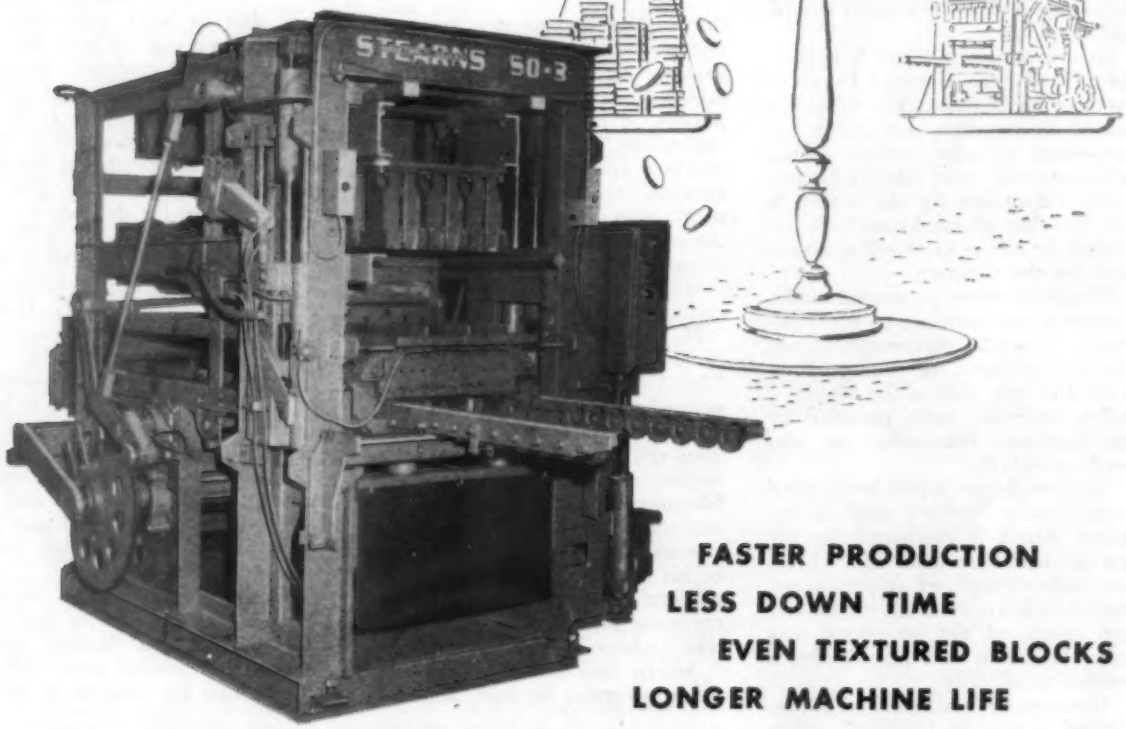

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Paul Blaise, Mount Royal Paving & Supplies Ltd., Ville St. Michel, Quebec, and H. C. Peters, Blaw Knox Co., Pittsburgh, Pa.

that with this steady growth in business labor has become accustomed to regular wage boosts and might expect further boosts even if business falls off.

North Carolina and **South Carolina** — In this area demand was down 15 to 20 percent in 1954, largely due to a drop in highway and military construction. As a result sharp competition developed and prices dropped. A reversal is expected in 1955 which may reach the 1953 record level.

Pennsylvania and **New Jersey** — Construction volume set new records in 1954, and 1955 is expected to be even better. In Pennsylvania construction was up 20 percent. There was a cement shortage from May through October, but an adequate supply seems assured for 1955.

New York — 1954 was a good year in eastern New York, in spite of a 2,250,000-bbl. cement strike and hurricanes Carol, Edna, and Hazel, which did considerable damage to sand-and-gravel and ready-mix plants. A record year is expected in 1955, with an increase in all types of construction. One of the big items is $350,000,000 for mental hospitals. The only possible trouble would be from labor in the cement industry as the present contracts expire early in the year.

Ohio — Ohio as a whole had a good year, with volume and profits up in almost all sections; and with a few exceptions 1955 will also be good. Profits were up 3 percent in the Cleveland area, 4 percent in Youngstown, 10 percent in Columbus, 14 percent in Akron, and 20 percent in the Wilmington area. In Springfield volume was down 8 percent, but 1955 is expected to be back to the 1953 record. In the Hamilton area business was good; but rising costs cut into profits, and late in the summer cement had to be rationed to customers. The Springfield area also had a cement shortage and more shortages are expected in 1955.

Indiana — In the Fort Wayne area the construction volume was up 15 percent, and the toll highways being built or soon to be built are expected to set a new record in 1955. The chief problem in this area for several years will be cement supply.

Minnesota — 1954 was a good year for both sand-and-gravel and ready-mix, but profits were down due to increasing competition and the increased cost of cement, which could not be passed on to customers. Even better demand is expected in 1955, and cement supply is the main problem.

Nebraska — In spite of the low farm income, demand and profits held their own in 1954. Demand is expected to increase about 5 percent in 1955 and about 10 percent in the Omaha area. A cement shortage is expected late in the year.

California — In northern California business was good in some areas which had large construction projects, but not so good in others. On the whole business was up about 10 percent and profits 5 percent. In Los Angeles County construction set a new record, and 1955 is expected to be even better. The only problem was a cement shortage.

Washington Report The annual report on the Washington scene by Vincent P. Ahearn, executive secretary of both associations, has become a must. The most important political development of 1954, in his opinion, was the shifting of the balance of power in the November elections. He pointed out that the Democrats have won control by a narrow margin in the House and in the Senate and also in the number of state governors. The main reasons for this shift, he said, were the rise in unemployment and the drop in agricultural prices; but the election as a whole showed no real trend in public opinion. He also believes that President Eisenhower's popularity has not been affected and that he can be reelected if that is what he wants. If he does not run, Mr. Ahearn added, the Republicans will have difficulty finding another candidate with a chance to win; the Democrats, on the other hand, have a number of good possibilities.

California and Florida meet! E. Brovelli, Basalt Rock Co., Napa, Calif., and M. E. (Doc) Rinker, Rinker Materials Corp., W. Palm Beach, Fla. (also immediate past-president of the National Concrete Masonry Association).

CONSTRUCTION, CEMENT SUPPLY, AND HIGHWAYS

Construction Outlook At a joint session of the two associations, three papers on subjects of national importance were given by experts in their representative fields. Frank J. Rooney, president of a Florida contracting firm and vice-president of the Associated General Contractors of America, discussed *The Construction Outlook for 1955*. He said that the construction industry is expecting to reach a record $55,000,000,000-year in 1955, which will top the previous record of 1954 by more than $2,000,000,000. $40,000,000,000 will represent new construction, the remainder being for maintenance and repair work; and, he added, this amount does not include President Eisenhower's proposed highway program.

However, in spite of the record volume, Mr. Rooney said that he expects competition to be keener in 1955; and with labor costs rising another 5 percent, he predicted bids to be lower.

Cement Industry An informative paper entitled *Twenty-Five Years of Post War Growth for the Cement Industry* was given by Joseph S. Young, president, Lehigh Portland Cement Co., Allentown, Pa. According to Mr. Young, the nation's cement industry, which has been growing steadily since the end of World War II (capacity has increased by 54,000,000 bbl.) will continue to expand at an accelerated pace for years to come. The cement industry is bullish on the future and in an expansion mood, he said, and accordingly it is reasonable to expect that by 1970 annual cement consumption in the United States will have been increased over present figures by approximately 50,000,000 bbl. or a gain of 20 percent.

This forecast, he said, is based in

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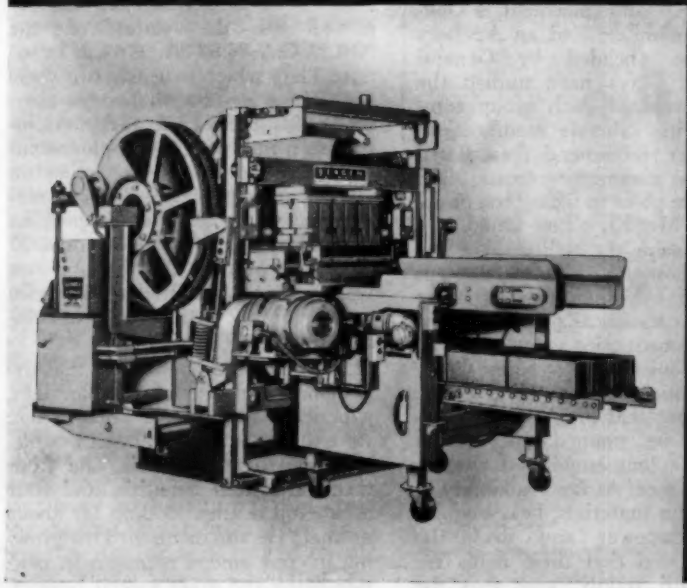

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H. I. Pierce, Gary Lime & Cement Co., Gary, Ind.; Mr. & Mrs. C. F. Carlson, Carlson Concrete Supply Corp., Indianapolis, Ind.; and Thomas R. Burns, John N. Bos Sand Co., Chicago, Ill.

part on the likelihood of increased demand stemming from the continuing growth of the country's population, which can be expected to approach 200,000,000 by 1970. He also emphasized that, since 1939, cement has been used in new construction in proportionately greater amounts than other building materials (a 116 percent rise for cement, compared to 66 percent for other material).

Mr. Young cited financial obstacles and other problems involved in any expansion to meet this anticipated increase in demand but expressed confidence that the cement industry would meet the challenge successfully. One major financial obstacle is the $10 per bbl. of annual capacity needed for new plant construction.

The speaker gave considerable credit to the role played by the Portland Cement Association in bringing about the increased use of cement and concrete. He said that this organization, which numbers among its members most of the cement companies in the United States and Canada (about 90 percent of the total output), supplies valuable technical advice and service to cement users and producers.

Mr. Young concluded with a discussion of the problem of quality concrete, which is of major importance to the cement producer, as well as to the ready-mixed concrete producer.

Eisenhower's Grand Plan One of the highlights of the Miami convention was an excellently prepared report by Ezra C. Knowlton on *President Eisenhower's Highway Program—A Most Important Milestone in the Development of our Nation's Highways.* Mr. Knowlton pointed out that in order to overcome the very serious highway deficiencies of today, the President in July of last year proposed a four-point highway program involving a $50,000,000,000 additional expenditure during the next ten years. The program included:

1. A grand plan for the consistent development of a safe, integrated highway system connecting every part of our nation's highways—municipal, rural, national, and local.
2. Setting up financing arrangements based upon self liquidation wherever possible, through tolls, increased motor vehicle revenue, and Federal Aid.
3. Continuation of the present effective co-operation between the states and the Federal Government in the administration and prosecution of the augmented highway programs.
4. Inauguration of a program initiated by the Federal Government with state co-operation for the modern development of the important Inter-State System of 38,000 miles, the government to advance funds or guarantee obligations of states or other local units of government where necessary.

Since that announcement, a Governor's Committee and an Advisory Committee (headed by General Lucius D. Clay) have studied the original proposal, each group coming up with valuable modifications and further recommendations. Based upon these committee reports, signs everywhere point to the success of the program, Mr. Knowlton stated.

In discussing the ability of the nation's economy to adjust to the stepped-up highway program, the speaker referred to statistical comparisons of highway construction volume to total annual construction volume (the present ratio is about 9 percent), pointing out that highway construction can be stepped up without throwing a long-established relation out of balance. As for availability of construction materials, heavy equipment, manpower and steel, the speaker stated that these items are in plentiful supply, and that the necessary expansion can be easily provided by contractors. Cement supply may be short in certain sections, but the cement industry is expanding at rapid rates to accommodate an augmented construction program.

In concluding, Mr. Knowlton stated that President Eisenhower's proposal could well be the most important contribution to the nation's highways made by any president since Jefferson signed the first Federal Aid Road Act 150 years ago.

INSURANCE, WAGES, AND LABOR AGREEMENTS

Group Insurance Donald Shepherd of the John Hancock Mutual Life Insurance Co. reported on the status of the N.R.M.C.A.-N.S.G.A. Group Insurance Plan, which is nearly two years old. There are now 46 member companies insured in the program, involving a total of 1,463 employees insured and additional protection on the dependents of 942 of these employees. Of these 46 companies, he pointed out, 29 have fewer than 25 employees insured, and these persons would have been unable to obtain group insurance without the association program.

Mr. Shepherd pointed out that the plan had had an unfavorable claim experience in the past year. There were three deaths from heart trouble, one from arteriosclerosis, one from acute infectious hepatitis, and four accidental deaths, totaling far above normal. He also mentioned the growing interest among members in pension plans and other special benefits.

Information on these is provided in a special booklet *How Strong is Your Chain of Protection?*

Welfare Funds-Area Contracts Charles A. Horsky, counsel for the two associations, discussed *Welfare Funds and Area Contracts.* He said that it is planned to reprint the collective bargaining booklet, now over six years old.

The area contract plan (group bargaining) is the joining together of employers in a city or larger area for the purpose of group bargaining with unions. The result may be a single contract for the entire group or identical individual contracts. Area contracts preceded the Taft-Hartley Act by many years, but this act put the practice on a sound legal basis. In spite of the success and legal soundness of area bargaining, however, Mr. Horsky said that two unsuccessful attacks have been made on it in recent years, one within the last few months.

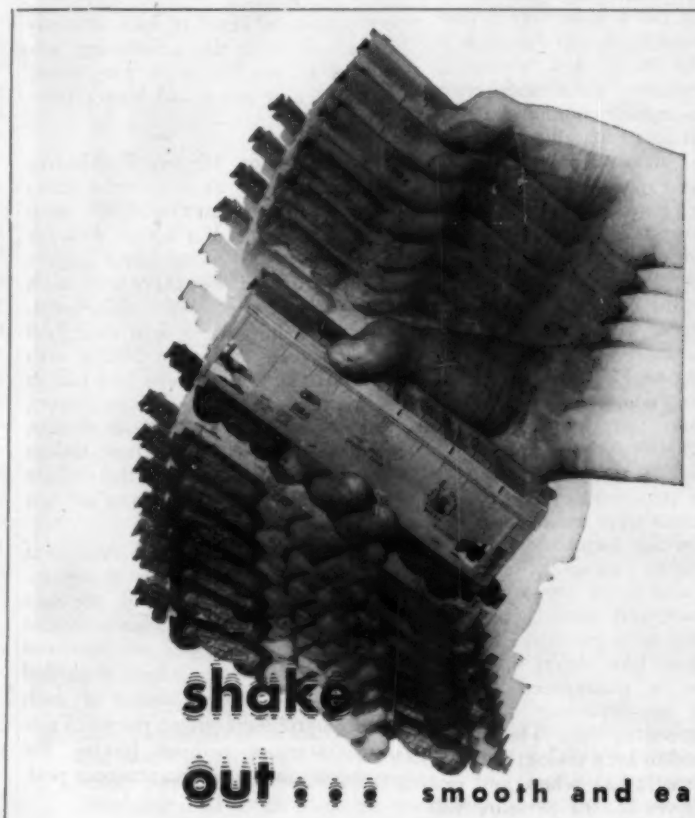
Mr. Horsky quoted the edict of the National Labor Relations Board in the most recent case, as follows: "The union's action represents a technique of exerting economic pressure to atomize the employer solidarity which is the fundamental aim of the multi-employer bargaining relationship. The calculated purpose of maintaining a strike against one employer and threatening to strike others in the employer group at future times is to cause successive and individual employer capitulations. Therefore, and in the absence of any independent evidence of anti-union motivation, we find that he respondents' action in shutting their plants until termination of the strike at Frontier was defensive and privileged in nature, rather than relatiatory and unlawful."

This policy, he said, does not make all joint lockouts legal. "If the group of employees have not engaged in real group bargaining," he pointed out, "or if the strike against the one employer is not really in support of demands made on all employers, the joint lockout may still be illegal." He advised producers to get counsel before taking any action.

Area contracts, said Mr. Horsky, may result in area or group commitments to joint welfare funds. The original labor relations act—the Wagner Act—was based on the idea that it was no business of an employer how his employees conducted their organized activities or how the union conducted its affairs. The Taft-Hartley Act, he said, carried on the same general idea, but required employers to be concerned in the administration of welfare funds. The unions naturally resented the injection of the employers in a matter which the unions had over the years come to think was none of the employers' concern.

This, said Mr. Horsky, was the atmosphere in which the welfare funds grew, at first slowly but at a spectacular rate in recent years. These funds are now so numerous that in 17 major labor market areas about 9 percent of all workers are covered by some type of welfare or pension program. The financial resources of these funds are not known, but they run into the billions of dollars. He reminded the producers how a few examples of abuse led to Congressional investigations and became almost a national scandal.

Mr. Horsky emphasized that employers can not remain indifferent to such abuses. An employer has a responsibility in the selection of the employer trustees; and if an officer of his company is a trustee, there is a direct liability, with serious penalties for failure to meet the repsonsibilities involved. There is also, he pointed out, the equally important moral responsibility to the widows and orphans, the injured and the sick,



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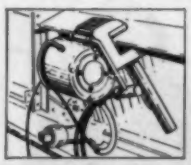

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those too old to work, and the others for whom these funds are intended. Pending passage of legislation for a clear-cut program by Congress, Mr. Horsky said that it is every employer's duty to find out about the administration of welfare funds in his area and to report any irregularities. If the problem remains unsolved, he warned, there will almost certainly be greater government intervention, and probably ultimate federal administration.

Wage Pattern Kenneth E. Tobin Jr., assistant executive secretary of both associations, gave a summary of the wage pattern in 1954, based on a quarterly report from a representative group of producers. The A F of L teamsters union dominates these industries, many of the smaller companies negotiating with them for all employees. The reports showed wage increases for the year ranging from 15 up to 55 cents per hour in different areas. Only 6 of the 78 reporting had strikes, and only one was of more than 10 days' duration. In non-union areas the largest wage increase was 10 percent, and some areas had none.

According to Mr. Tobin, there is an increasing demand for more paid holidays and vacations with pay. Holiday agreements now range from 2 to 11. The union is trying to make 7 the minimum. Demands for paid vacations were made on a few of the reporting companies in 1954 on the basis of two weeks after the first year, and three weeks after 15 years. More and more companies are agreeing to a guaranteed work week. There have been some demands for a guaranteed annual wage, but no reporting company has yet agreed to this. The unions are expected to keep trying; and Mr. Tobin warned that when any one producer gives in, the pressure will increase on others. Some producers agreed to added benefits in health and welfare plans during the year, and group insurance continues to grow. There were only a few demands for retirement plans, but none went into effect.

In describing the various types of contracts in effect Mr. Tobin mentioned that about half of them expire early in the year and only about 30 percent in November or December, when a strike would be least harmful. He warned that these industries must be kept entirely distinct from the construction industry, as they pay lower wages but provide much steadier employment, better working conditions, and numerous additional benefits, such as vacations. In 1955 the unions are expected to ask for more pay, more benefits, and more and bigger pensions.

Mr. & Mrs. A. J. Thomas Jr., Thomas Redi-Mix Concrete Co., Orlando, Fla.

Writing Labor Agreements Vincent P. Ahearn, executive secretary of both associations, discussed *A Check List for Employers in Writing Labor Agreements.* He said that there is no such thing as a perfect labor agreement. Collective bargaining was described as an unrealistic term in dealing with many unions which think and talk in terms of demands on employers, backing up this attitude with threats, strikes, and boycotts. These unions also have little regard for the welfare of employees, most of whom are not members by choice.

It was pointed out, however, that there are many instances in our industries of amicable and pleasant relationships between management and labor. Contracts are renewed from year to year on a basis of mutual respect and understanding of each other's problems, giving the employee fair increases without forcing the company into a disadvantageous position in a competitive market. We have moved out of the jungle in our dealings with unions in this industry, said Mr. Ahearn. He also pointed out that from now on the laws of this country will encourage unions and require management to deal with them. This, he felt, would mean no retreat from the fundamental position taken in the Taft-Hartley Act but rather an attempt to eliminate any unfair practices.

T. S. Baker, Shands & Baker, Inc., Jacksonville, Fla.; R. W. Greene Jr., Concrete Supply Co., Louisville, Ky.; and H. M. Birtley, Shands & Baker, Jacksonville, Fla.

The Wagner Act, Mr. Ahearn feels, was one-sided and it created distrust of the unions while erecting a wall between workers and employers. Some brave employers, however, refused to be alienated from their workers and convinced them that they must work together if the company were to stay in business and the workers were to have jobs. This course was not illegal under the Wagner Act, he pointed out; but it took the Taft-Hartley Act to encourage employers to recapture the loyalty of their employees. Much more can be done along this line, and the unions are alarmed at this new attitude among employers. Mr. Ahearn believes that Congress will continue to protect the right of free speech between employer and employee.

Many contracts with unions are shameful surrenders of the rights and authority of employers, said Mr. Ahearn. Employers should prepare their own proposals instead of being put in the psychologically disadvantageous position of trying to get the unions to soften down their demands. The unions also like to engage in pattern bargaining, making up one contract for all employers with whom they deal. He emphasized that a contract made by one producer is not binding on another, and that the development and execution of a sound labor policy in any company is a function of the principal executive of the company. Again he urged members to use the services of the association in helping to make out good labor contracts.

All that an employer is required to do by law, said Mr. Ahearn, is to recognize the union as the exclusive bargaining representative in the matter of rates of pay, hours of work, and other conditions of employment set out in the agreement, for employees of the company who have elected the union to represent them. He also discussed the check-off, rates of pay, and hours of work. A provision of labor agreements which badly needs improvement is that concerning seniority. In these industries, he pointed out, promotion cannot be based on

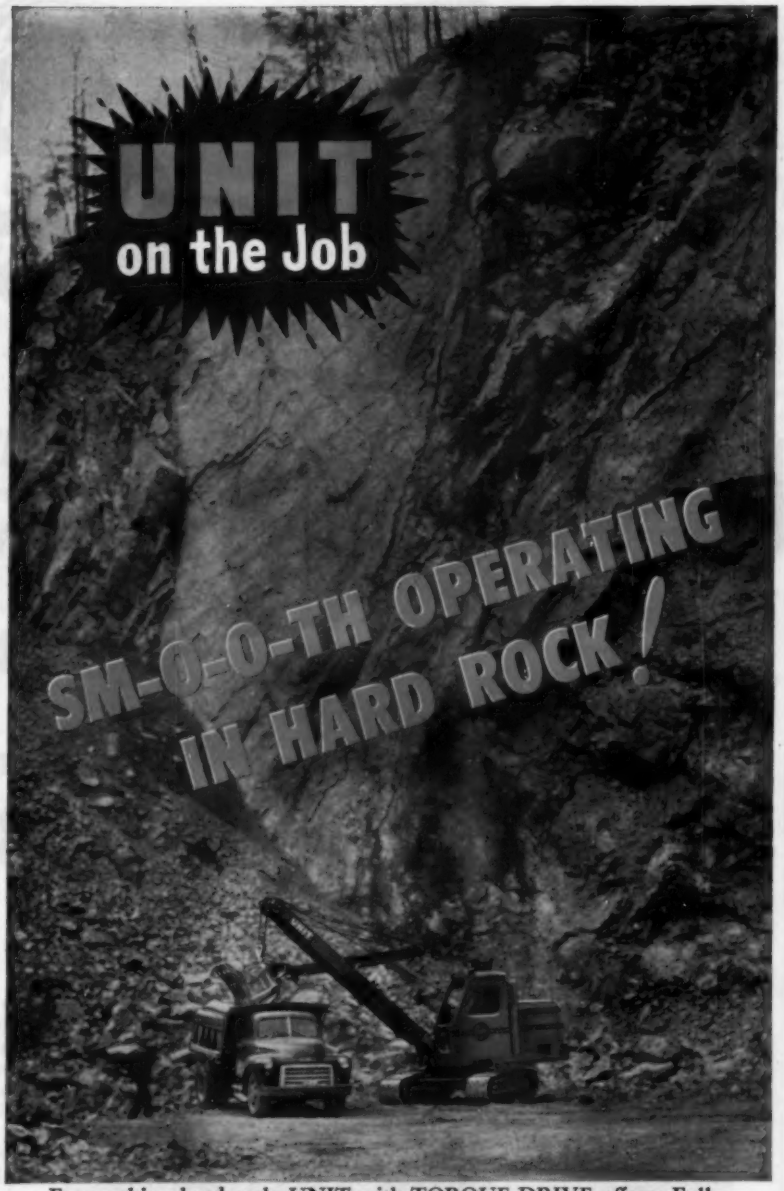
seniority alone, although many existing contracts contain such provisions. Mr. Ahearn warned members not to specify in contracts that *any* disagreement will go to arbitration, only that differences regarding the specifications in contracts can go to arbitration if necessary. If there is to be arbitration, a single arbitrator or an impartial umpire should be used, as representatives of the two disagreeing parties would only confuse the issue.

In closing, Mr. Ahearn pointed out that there is a vast difference between accepting regulations imposed by law and letting unions tell us how to operate our businesses to the detriment of both workers and employers. He also emphasized the importance of sound employer-employee relationships, which must get year-round attention. It is not necessary to like labor unions, he admitted, in order to get along with them; but getting along with them is also an important job. Mr. Ahearn pointed out that companies which are not unionized should also keep in constant touch with developments. In the ensuing discussion it was pointed out that it is a serious error to give in on the higher construction industry pay rate, as well as on the guaranteed work week. He declared that the guaranteed annual wage is unthinkable. Also, if a company says it cannot afford a wage increase, the union has the right to check the company's books; and there is no restriction on how far the union can go in this direction, perhaps even to a C.P.A. audit.

MERCHANDISING PRACTICES AND PROMOTION

Massachusetts John B. Donovan, Valentine Concrete Co., Springfield, Mass., who led off the panel on merchandising practices, told of the problems which ready-mixed concrete producers had experienced last year in the northeastern section of this country. A serious strike of ten weeks in May hampered cement production and forced many producers to pay higher prices for out-of-area cement.

The margin of profit realized on an increased volume of concrete produced in the area last year, he felt, was most disappointing, and a large part of the shorter profit stemmed from the increased cost of cement. Even after the strike had been settled, short cement supply existed practically until the end of the year. It is Mr. Donovan's belief that the



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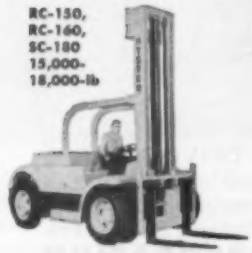

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shortage will be repeated in 1955. He was somewhat apprehensive of the progress of the industry in the future, mentioning the possibility of its function being supplanted by other methods.

The importance of maintaining good relations with customers was stressed as a part of merchandising which is particularly vulnerable today. How a complaint is handled generally determines whether the customer's good will is retained, Mr. Donovan declared. He feels that the reputation of a firm can be imperiled by a lack of good judgment on the part of an employee who mishandles a complaint. He stated that it is fairly easy to determine, in each case, whether a complaint from a customer is justified or not, and that it is quite unnecessary to adopt a slogan that "the customer is always right". The correction of mistakes, however accomplished, he feels, is expense well invested.

Mr. Donovan described an instance played by employees of the organization who have more or less direct contact with customers or their representatives, such as the dispatcher or order-taker, the salesman, and the truck driver. Their attitude, courtesy, and interest in their work have much to do with the success of the company. Job superintendents occasionally have much to say as to the selection of the plant getting the order for concrete, and good relationships between these key men and the company's truck drivers is accordingly important.

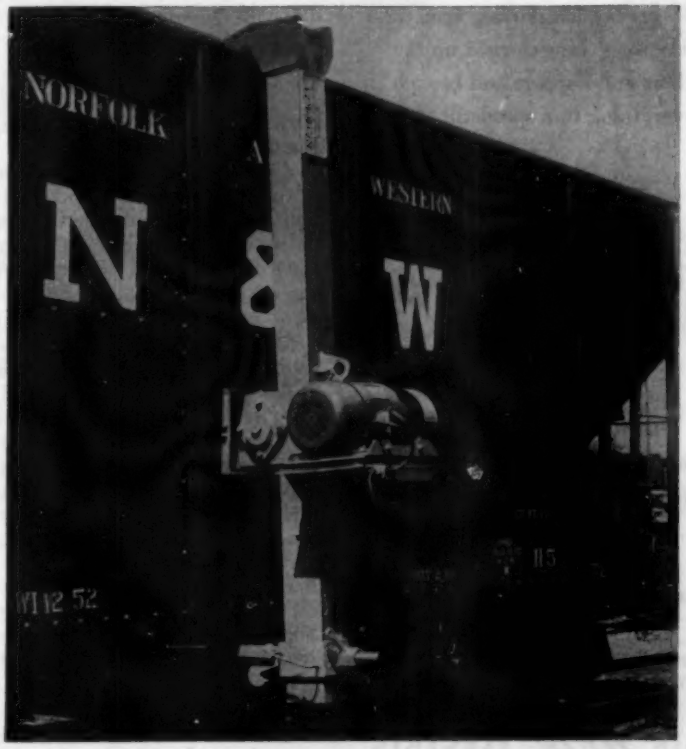
Mr. Donovan described an instance where straightforward acceptance of blame corrected a troublesome situation. The cement boots on a car of cement ready to be unloaded had been stolen. Since replacements were not immediately available, the resulting delay of a couple of hours in deliveries precipitated complaints. A letter was sent to all the contractors affected, offering a reasonable back charge for the delay caused them. None accepted this offer. Mr. Donovan felt sure that this interest in readily accepting responsibility proved highly valuable in maintaining customer satisfaction.

North Carolina Harold E. Shelby (Concrete Supply Co., Charlotte, N. C.) stressed the complexity of the ready-mix business and the extreme care necessary for the production of uniformly good concrete. Complete and accurate records and adequate tests are important requisites, he declared. When complaints are received, detailed records make it possible to determine what happened and who or what was responsible. In one case he cited concrete was placed at 4 p.m. on a Friday in cold weather. The test cylinders made were stored on the job over the week-end and arrived at the laboratory's moist curing room on Tuesday. As a result, the cylinders got adequate curing for only 2½ days before the 7-day compressive strength tests were made, and there were low. However, the company was able to show the architect the weights of each ingredient in the mix, the time, temperature, etc., of the batches; and this information convinced him that the concrete was actually satisfactory.

According to Mr. Shelby, such records are not expensive to keep, and they can save much trouble. Competition inside the ready-mix industry is great, but the competition with other types of building materials is even greater. The best way to compete with both, he said, is with quality, not with price. Keep house well, make a good product, and let the users know about it.

Illinois Robert J. Hummel (Consumers Co., Chicago) jolted his listeners somewhat with his opening statement that his company does very little advertising, spending about 1½ mills per dollar of sales in

MEET A MONEY SAVER



Latest Model "C"

A NATIONAL CAR SHAKER, in service 4½ years at a ready-mix plant, has unloaded over 1 million tons of sand and gravel in all kinds of weather. Only one man has operated the shaker. Estimated savings — $23,000.

NATIONAL CONVEYOR & SUPPLY CO.
348 N. Harding Avenue
CHICAGO 24, ILL.

The case of the arching soap chips...

No amount of sweat and tears in a Detroit soap plant seemed to keep production moving smoothly. Arching soap chips clogged up the bins and hoppers and brought everything to a standstill.

That is, until a CLEVELAND vibrator was installed and got things back into full swing again.

There's no limit to the range of materials a CLEVELAND will move. Our detailed literature will describe the vibrator for your problem.

AIR *and* ELECTRIC

Bin Stuck Lately?

THE CLEVELAND VIBRATOR COMPANY

2828 Clinton Avenue • Cleveland 13, Ohio

1954, as compared to over 5 percent of sales in some earlier years. This, he said, was due to the fact that 98 percent of the company's ready-mix is sold to non-home-owners, going almost entirely to contractors. Ordinary forms of advertising do not reach such customers efficiently.

Mr. Hummel also explained that in the Chicago area ready-mix is sold by cement content and slump is important. The 5-bag mix is the base, and the company will advise on the desirable content if necessary. Truck-time at the job is allowed for so many minutes per cu. yd., and overtime is charged beyond that with credit for any time savings. Quality and service are emphasized; and if a delivery is going to be late, the customer is so notified. In Chicago, he said, all architects and engineers use ready-mix, and the demand continues to grow rapidly. Dry-batched aggregates are still popular for paving, but the ready-mix industry has "got its foot in that door", and ready-mix producers may get much of the concrete for super-highways.

New Mexico Eugene Sundt, Albuquerque Gravel Products Co., in discussing merchandising problems of the industry, said it appeared that selling ready-mixed concrete essentially consists of selling the customers service. He defined service as "giving the customer what he wants, when he wants it, and how he wants it".

Mr. Sundt properly lays the responsibility for improving the quality of this service upon all personnel who have a part in producing the product. He mentioned the importance of the order taker, dispatcher, salesman, and driver in maintaining satisfactory relationships with the customer. He described the importance of having the "inside men" go out into the field one week each month to see the conditions there, and recommended holding regular monthly meetings where safety, courtesy, and customer relations are emphasized.

All possible aids to good service are utilized fully by his firm. Some of these include two-way radio units installed in each mixer truck, reliable equipment kept attractively painted and well maintained, various bins to make special aggregates and cement available, recording devices for accurate measurement and batching. His salesmen, playing key roles in giving service, have the drivers advise them by radio of any dissatisfaction on the part of a customer, so that it can be immediately investigated and corrected. Such quick response to complaints pays dividends in satisfaction.

Mr. Sundt places customer acceptance of the product (he calls it quality) next to service in importance, mainly because (1) quality cannot be sold unless it is backed up with service, and (2) many customers are interested in quality only when there is a complaint from the architect or the engineer. He stressed that consistent slump and strength of the product are the gauges by which the customer measures the producer's reliability and reputation.

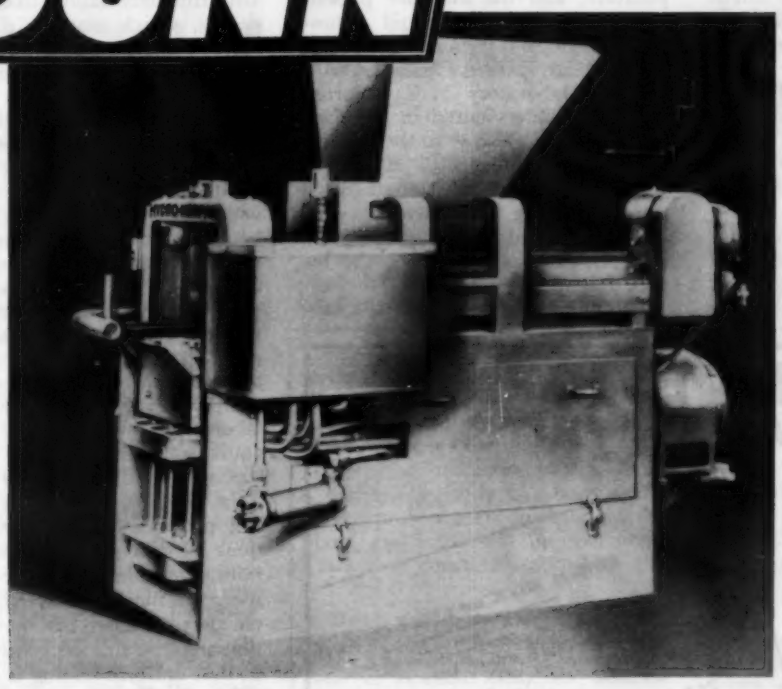
In conclusion, Mr. Sundt discussed the variation in the quality of cement purchased during the year. He stated that his company buys cement on the basis of no responsibility for results on the part of the cement producer; but the concrete must be sold on the basis of guaranteed strength to keep the customer's confidence. Because of this apparent disparity in responsibility, the concrete producer is forced at times to use a higher cement content than necessary in his mix as a safety factor.

Promotion Aids *New Promotion Aids for the Ready Mixed Concrete Industry* were described and illustrated with slides by S. H. Westby, manager, Housing & Cement Products Bureau, Portland Cement Association. The various items in this package, he said, give ready-mix producers a comprehensive plan for an active promotional campaign. Some of these promotional pieces are personalized, with only the name of the producer on them, while others are regular P.C.A. releases. Mr. Westby also described 30 radio and television spot announcements, blotters, newspaper advertisements, and other items of promotion which P.C.A. prepares for cement users. It was announced that a promotional kit was being sent to all N.R.M.C.A. members; others can get them at P.C.A. district offices.

N.R.M.C.A. - P.C.A. Ready-Mix Movie The premiere of the new *Quality Ready Mixed Concrete* film was held at this convention. This motion picture was producer by N.R.M.C.A. in co-operation with the Portland Cement Association, and 20 copies are available for the use of producers. This film, produced under the supervision of L. H. Corning, P.C.A. director of production, was introduced in his absence by S. H. Westby. He impressed on his audience that it is now more important than ever to produce quality concrete and see to it that nothing is done to allow deterioration in transit or placing. This film,

(*Continued on page* 190)

DUNN



HYDRO-KORPAK BLOCK MACHINE

Priced to fit modest budgets, the Hydro-Korpak brings the production economies and operating efficiency of advanced engineering within easy reach of average sized plants, or those with normal sales potentials. Its design is based on 50 years of block-machine building.

Two-way packing—vertical and lateral—results in blocks of extreme density and superfine quality. It's unique with Korpak, because only Korpak has oscillating cores.

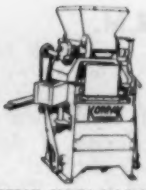
1-man operation . . . hydraulic movements . . . electrical controls. 2¼ tons of machine self-contained to occupy only 33 square feet of floor space. Available on sale or lease.

Direct-to-user selling through factory demonstration, with resultant savings passed along to owners. You are invited to Holland—as our guest—to see the machine in operation and get information first hand. Meanwhile, write for descriptive catalog.

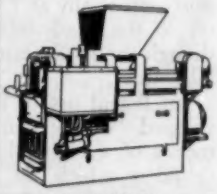
W. E. DUNN MFG. CO. • 543 W. 24th Street • **HOLLAND, MICH.**

IN CANADA: Dunn Masonry Machinery, Ltd., 998 Dundas Hiway, Cooksville, Ont.

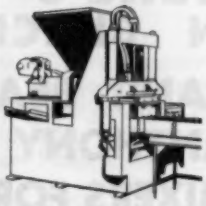
BUILDER OF CONCRETE PRODUCTS MACHINERY SINCE 1904



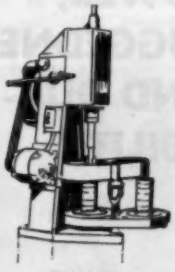
KORPAK BLOCK MACHINE



HYDRO-KORPAK BLOCK MACHINE

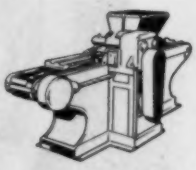


TWIN-PAK BLOCK MACHINE

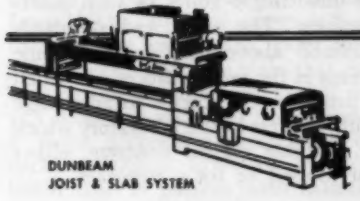


CHAMPION DRAIN TILE MACHINE

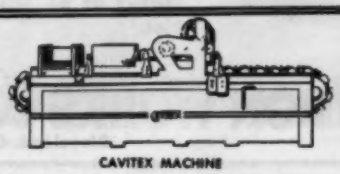
DUNN "AUTOMATIC" DRAIN TILE MACHINE



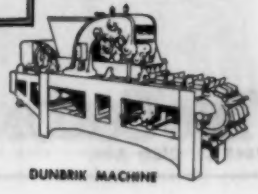
DUNTILE MACHINE



DUNBEAM JOIST & SLAB SYSTEM



CAVITEX MACHINE



DUNBRIK MACHINE

(*From page* 154)

ceipt is not known (when that is the case), since such a statement might imply carelessness on their own part or criticism of the contractor (who is their employer), which they cannot afford to do. The result is that the complaint on low strength in a report—especially at 7 days—is passed on to the ready-mix producer, although the malfeasance lies with the laboratory.

Intelligent use of the recently developed "curing can" may offer a means of avoiding low strengths in cylinders which do not reach the laboratory punctually. The insulation in these cans serves to protect the cylinders from extremes in temperature, and the moisture present insures a reasonably humid atmosphere. A recent release by the National Ready Mixed Concrete Association's laboratory staff reported tests of cylinders cured in the cans which were very close to those given standard procedure at 7 days, but which were below the strengths with standard curing at 28 days. If cylinders were stored in curing cans prior to receipt at the laboratory, the report might state this fact.

After the cylinders reach the laboratory, capping, curing, and testing should be conducted in strict accordance with A.S.T.M. method C-31. Unfortunately, failure in one or more details, which may be difficult for a ready-mix producer to detect, will tend to give irregular test results.

For instance, cylinders should be capped with a material having greater compression strength than the concrete being tested; but many laboratories use plaster - of - paris, which sometimes is so soft that it can be scratched by a thumb nail. Again, the specimens should be cured (after the first 24 hours) in a moist condition, *i.e.*, free water maintained on the surface, but not exposed to running water; this condition requires a "fog room" with thermostatic control. However, some quite reputable laboratories have no "fog room" or equivalent; they merely keep the specimens under damp burlap.

In the testing procedure the standard prescribes the following conditions for placing the cylinder in the testing machine—"As the spherically-seated block is brought to bear on the specimen, its movable portion shall be rotated gently by hand so that uniform seating is obtained." (This detail may easily be neglected.) The testing machine should apply the increase in pressure at a uniform rate between prescribed limits, and should automatically record the pressure at the instant of crushing. Unfortunately, some laboratories use outmoded machines which do not perform as prescribed. Any shortcoming by a laboratory in these details may result in reported strengths which are considerably below the values which would be obtained under correct procedures.

The foregoing remarks are not intended as a sweeping criticism of commercial concrete laboratories. These laboratories are not research institutions and cannot be expected to attain the *nth* degree of control in their operations; but they can be expected to carry out the obligations they assume when they undertake to make tests in accordance with recognized standards. Many do a commendable job of testing concrete, but some are lax in their performance; others apparently fail to recognize their reasonable obligations. Occasionally a ready-mix producer may be unwittingly guilty of such shortcomings. The steps and standards outlined above may indicate some points in the testing procedure which a producer can discuss to advantage with workers in the laboratory which is checking on his concrete, either for himself or for a customer.

HERE'S THE EVIDENCE... IN BLACK AND WHITE...YOU CAN'T BEAT ANTHONY MIXERS FOR POWER, RUGGEDNESS AND DURABILITY

Our engineers will be glad to give you installation estimates at no obligation.

THE COLONIAL IRON WORKS CO.
17643 St. Clair Ave. Cleveland, Ohio

New Pushbutton Controls Provide Accurate Batching

A PUSHBUTTON batching control system installed in the Petaluma Ready Mix Concrete Company plant, Petaluma, Calif., has enabled this firm to reduce the margin of quality/quantity variance in the measurement of their materials to one-tenth of 1 percent. In operation since last October, the control unit has proved itself an important time and materials saver and has maintained uniform consistency for some 35,000 cu. yd. of materials produced by the plant, which is owned by Ernest Von Raesfeld.

In an effort to effect a more accurate system of material control in his plant, Mr. Von Raesfeld conferred with the local representative of the Toledo Scale Company and with Donald Turner, mechanical engineer of Petaluma; and the three evolved the installation, mainly from "trial and error" hook-ups and test runs at the plant and in the scale company's shops.

The basic measuring equipment already in the plant was utilized; but all manual steps were replaced with a sequence switching control unit, solenoid relays, and solenoid activators for the pneumatic valve and gate controls.

This unit has been in constant use for the last six months, and Mr. Von Raesfeld has estimated that it will soon amortize its initial cost.

The unit itself is about the size of a portable typewriter, and the scale solenoid unit which is affixed to the side of the beam cabinet requires a case about twice this size.

Since the device is proof against dust, moisture, and shock, and is not affected by ambient temperatures, it can be satisfactorily operated through a range of minus 40 to 140 deg. F. Repair, maintenance, and power costs amount to approximately 10 cents per day on the installation unit to date.

The system can be set to operate at one one-thousandth of a second, according to Mr. Von Raesfeld. Considering the variation in the reaction time of the operator and the fact that from 150 to 230 lb. of materials flow through the mix plant gates and valves per second, it is plain that the new batching control system will result in saving materials and furnish a more accurate measurement of each constituent aggregate in each batch than is possible with manual control. In one particular instance of actual operation of this unit, the sequence control unit measured the delivery of nearly six tons of aggregates and cement in a batch in less than one minute.

Another feature of the unit is the "full shutdown" factor. In the event of a mechanical failure within the batching plant, a stoppage in the flow of materials, or any similar interruption in the batching sequence, the pushbutton device shuts off everything until repairs can be made or the trouble corrected.

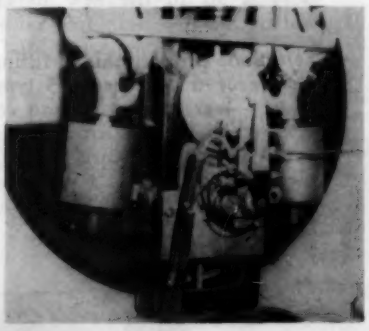
Since the installation of the system a continuing study has been made of the problems encountered in the plant, and important improvements have been constantly added to the basic control. One improvement has been a batch selector device based on the same sequence principle, which will permit operation without having to set any of the beam weights. Mr. Von Raesfeld feels that because of the flexibility of this device the installation in a commercial ready-mix plant should pay for itself in a matter of months. This addition will permit the operator to dial any one of 40 different formulae, push the buttons for the batching sequence, and obtain the correct amount of each material.

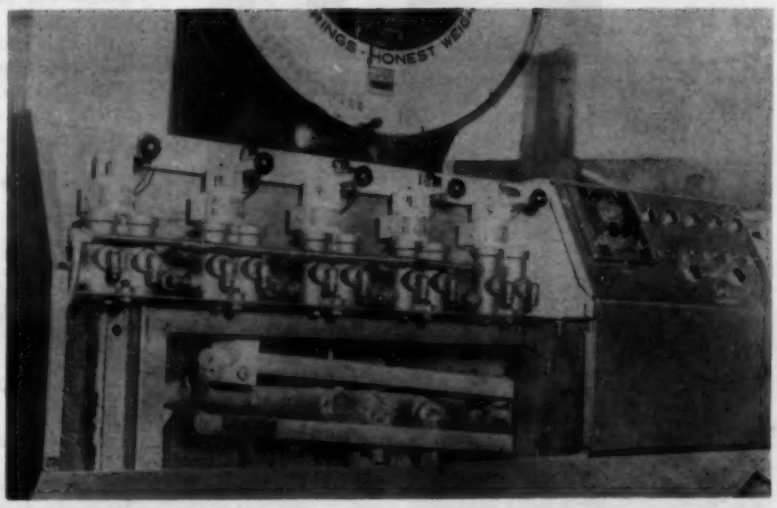
A further refinement in the design unit provides for plug-in replaceable sequence units, so that any plant operator can quickly and safely replace a switch element.

The Ohio Ready Mixed Concrete Association will sponsor a short course on ready-mixed concrete at Ohio State University, Columbus, Ohio, on February 7 and 8, 1955.

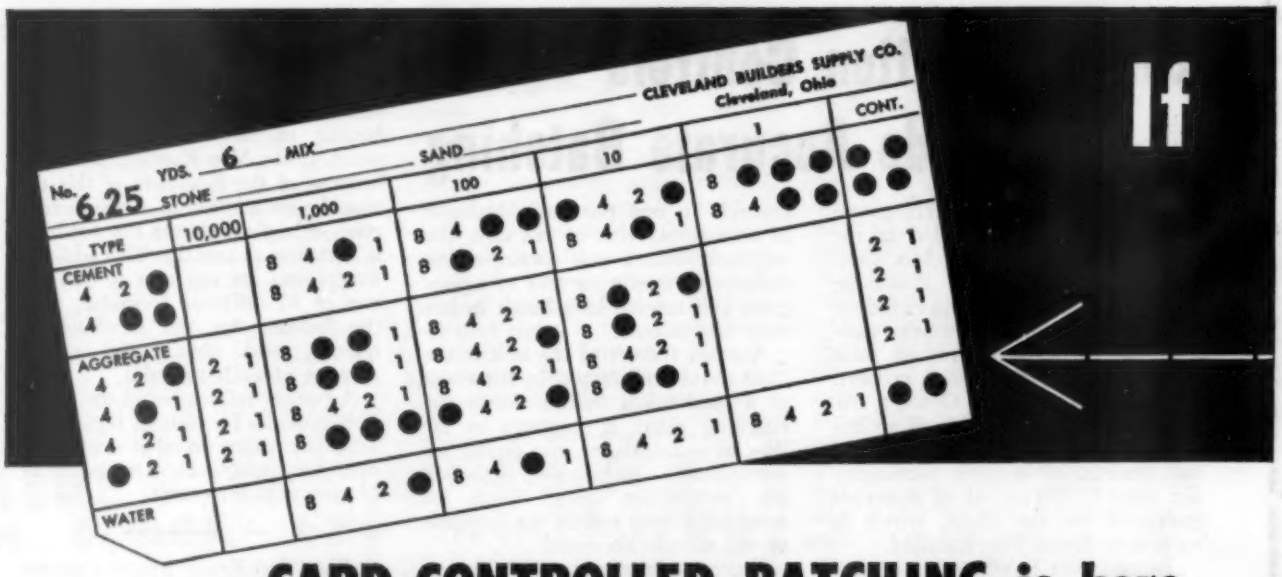
● Donald Turner, designer-builder of the sequence control unit, pointing out details of the mechanism to Ernest Von Raesfeld, owner of Petaluma Ready Mix Concrete Company, Petaluma, Calif. Note comparatively small size of unit.

● Rear of dial scale showing the electric selector system with leads to the dial system enabling the operator to "dial" a formula before starting the pushbutton sequence control. Range available, 1 to 40 formulae.





● The model now in limited production combines valve and gate controls, pushbutton sequence control, and a formula selector system in one cabinet. (Front panel removed.)



CARD-CONTROLLED BATCHING is here . . . and BUTLER has it!

A punched card now can be your batching operator. The human element — the chance of error — is gone. No dials to set, no levers to pull. The punched card does it all in the new BUTLER XK1 Electronic Batcher.

Selection, proportioning, filling, weighing and discharge of 6 aggregates, 3 types of cement — plus water — are automatic and completely interlocked. Every discharged batch is correct — to a split pound . . . Another feature never before offered: The electronic controls also compensate for moisture in sand or aggregates — and further, compensate for that compensation.*

*NOTE: To the mathematically minded: For example, 5% moisture in the whole is also adjusted for the correlary percentage in the adjustment. In other words, it integrates successive increments.

Batching at 186,000 miles per second.

The BUTLER XK1 Batcher combines the accuracy and sensitivity of weight control, the flexibility of punched card systems and the speed of electronics, which is the speed of light.

Virtually infinite batching selections.

From the holes punched in the card, the electronic control unit predetermines ingredient type, desired weight for each ingredient and the sequencing. An astronomical number of combinations of batch proportion is instantly available to the operator. A batch may be repeated at once or next year with equal ease. With the proper auxiliary equipment, bookkeeping, pricing and invoicing could also be handled from the same punched card.

Permanent, legal record.

Those cards constitute a permanent file instantly accessible for repeat orders. Further, the cards are tamper-proof, legal records of the exact weights and proportions of materials in every batch. Successive batching of the same combination is simply a matter of touching the starting button after each cycle.

Quick, easy maintenance.

Maintenance of the electronic equipment is so simple that any local radio repairman is perfectly capable. Moreover, unitized circuits permit any element to be replaced as quickly as a light bulb, so that it can be serviced at leisure.

You Produce Concrete . . .
TAKE a LONG, CLOSE LOOK at this CARD

One man for a two-man job.

The control cabinet can be located in the dispatcher's office — at a distance from the plant — and the dispatcher can operate the batchers directly.

New Horizons.

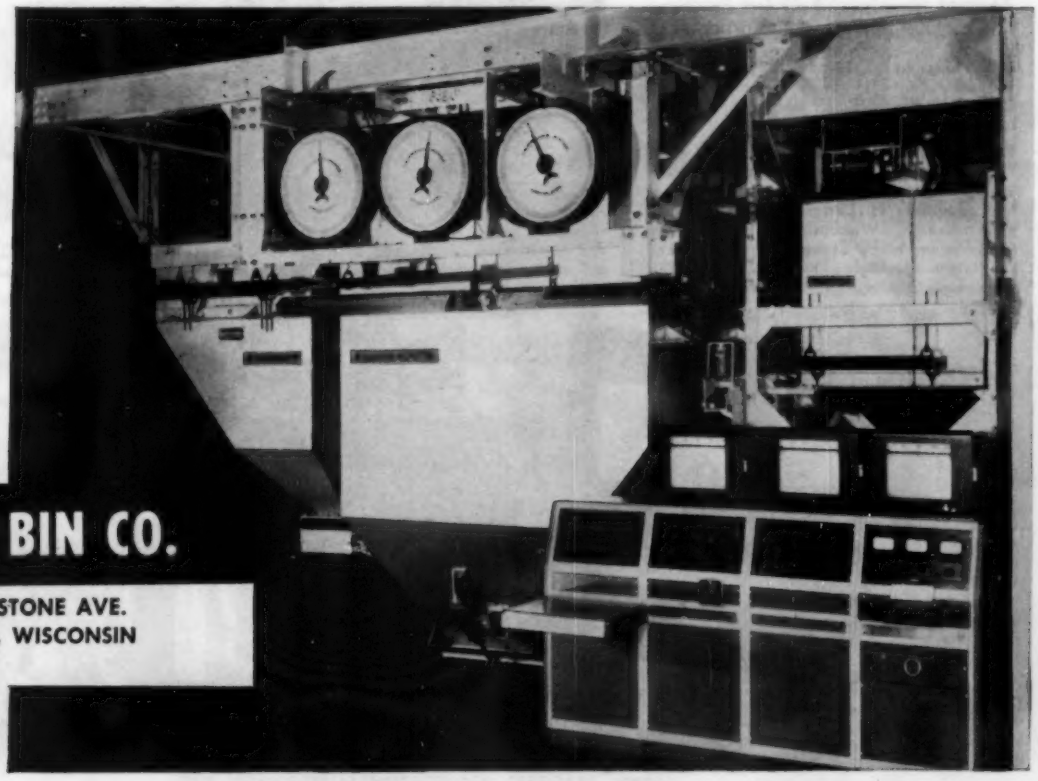
This great BUTLER development is of revolutionary importance to those in the concrete industry who are concerned with the complete integrity of their product and who wish to provide new horizons of economy, accuracy, flexibility, sensitivity and speed for the benefit of themselves and those whom they supply.

As An Historical Note.

The first BUTLER XK1 Electronic Batcher was developed by the Butler Bin Company with its vast experience in batching problems together with Fairbanks-Morse and Company, Electronics Division, which has pioneered and established leadership in the electronics field. It has been installed at the Cleveland Builders Supply Company in Cleveland, O.

You, too, can benefit.

Existing concrete plants can readily be converted to BUTLER XK1 equipment, no matter what make of your plant. Your Butler Engineer will be glad to supply all data — but please, make your inquiry on your letterhead.



BUTLER BIN CO.

987 BLACKSTONE AVE.
WAUKESHA, WISCONSIN

Wisconsin Firm Makes Vibrated Pipe—

obtains high strength and low absorption at early ages

By ROY L. PECK

another ON THE SPOT report

THE Madison Concrete Pipe and Products Company, Madison, Wis., started operations last September with one set of special forms for making 6-ft.-long Vibrapipe, under a license from the George W. Hoffmann Company, of Sioux City, Iowa. With this minimum of appurtenant equipment and with but three men, the firm is now producing daily from 30 to 60 lengths of pipe of different diameters, which meet A.S.T.M. C 75 and C 76 specified strengths and absorption limits after 18 days of open-air curing. The operators expect that this production will be doubled within a short time, and that with additional pipe forms they will be able to make 12-, 15-, 18-, 24-, and 30-in. diameter Vibrapipe by this system of vibration.

The owner and designer of the plant, Harry Steiro, a graduate engineer and head of Steiro Engineering Company, used a high degree of ingenuity throughout the plant layout in producing an efficient operation which can be expanded with the minimum of expense when the demand warrants. Located on three acres of ground to the southeast of Madison, adjacent to the intersection of two national highways, the plant can easily serve the lower central area of the state by truck shipment. At present all materials are received by truck, but this will be changed when a contemplated railroad siding to the plan has been completed.

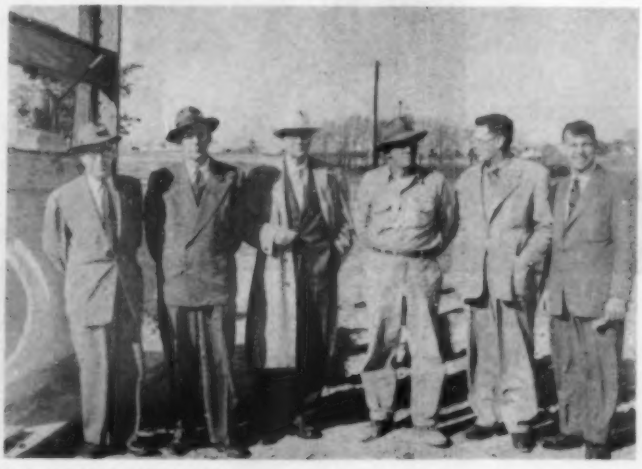
Sand and gravel are now dumped from the truck ramp into the collecting hopper of a Praschak bucket elevator, which lifts the materials into an overhead 23-ton capacity 3-compartment Binanbatch steel bin, sideboarded to increase its capacity to 30 tons. Cement is delivered in sacks to the side of the mixer. Aggregates flow down by gravity from the bin into a weighbatcher. Proportions for one 30-in. by 6-ft. pipe consist of 840 lb. of sand and 975 lb. of 5/16-in. gravel. The weighbatcher is carried on an overhead rail; and when it is filled, moves over to a position above the mixer, a Praschak 30-cu. ft. rotating-blade type. Three sacks of cement and the necessary water are added here; the amount of water is the maximum which will not result in a deformation of the pipe at the time of stripping. The exact water-cement ratio needed for optimum appearance is being determined as the operator's experience grows. A close approximation of the water content can be gained by observing the amount of bleeding of cement grout which occurs at the junction of the two halves of the form.

An 18-in. by 27-ft. Atlas inclined belt conveyor operates under the mixer discharge and carries the mix up to the point of use above the casting pit. A concrete turnhead-

An overall view of kiln end of Madison Concrete Pipe and Products Company's plant and curing-storage yard at Madison, Wis., showing the firm's first run of 30-in. by 6-ft. vibrated pipe.

Below: Testing of 18-day-old pipe by the Wisconsin State Highway Commission and City of Madison officials by the three-edge-bearing method.

Below, right: Present at the test were: John Thompson, city engineer, Madison, Wis.; W. J. Peterson, assistant city engineer, Madison; Guy H. Larson, engineer of test and research, Wisconsin State Highway Commission; Harry Steiro; George F. Hanson, state geologist, Madison, and Dick Henshaw.



distributor revolving at 20 r.p.m. is suspended from the end of the conveyor at this point, its spout centered directly above the pipe form. The speed of the conveyor is adjusted to feed the concrete into the form as required at any point according to the amount of consolidation of the mixture under vibration. While visiting the plant, we saw a 30-in. pipe form was filled in 4 minutes; handling the form from casting to stripping in the curing room, the complete manufacturing cycle was about 15 minutes. It is expected that these production times will be reduced as the crew become more accustomed to their duties, or when a contemplated second form is added.

The casting pit is of concrete, 16 ft. long by 7 ft. wide and 3 ft. deep. It can accommodate two or more concrete pedestal bases on which are set the groove-forming base pallet rings of the form. The pit is curved in its length, so that each pipe form comes directly under the sweep of the conveyor spout. The discharge end of the conveyor is mounted on rubber-tired wheels for this circular movement. No oil is used on the form surfaces; it has been found that cement dust on these surfaces produces a good insulation when absorbed by the concrete of the next pipe made. Only the base pallet rings are oiled, to resist any rusting action that might occur in the 24 hours these rings stand in the saturated atmosphere of the curing period. The semi-circular outer jacket and inner core of the forms are held in tight position by means of clamping devices, which also permit speedy unlocking.

The seven sizes of Keystone steel wire mesh reinforcing are rolled into the required diameters from sheets 6 ft. wide, with a Quinn bender. Total steel area in sq. in. per lineal foot is in accordance with A.S.T.M. specification Desig. C 75 and C 76 for the particular pipe diameter and concrete compressive strength. The reinforcing is held in place at the minimum of 1 in. from either form face by bending strands of horizontal wires at spiralled points in the length. The inner core form is centered by locking it to the loading cone to maintain uniform shell thickness.

The Vibrapipe vibrators used are being made in Germany for the Hoffmann Company. They are bolted directly to the outside form jacket. The vibrator consists essentially of an electric motor having eccentric cams placed on both ends of the rotor shaft which produce the controlled frequency of about 3,000 r.p.m. and variable impact ranges of from 500 to 3,000 lb. There is an optimum impact and frequency for each size of pipe made, to compact and consolidate the concrete into any desired depth or shell thickness. Vibration is turned on as soon as a small quantity of concrete is fed into the form and distributed around the bottom; this vibration continues until the form is filled. The operator watches the filling, so that an even distribution and equal consolidation takes place.

Exterior jacket and interior core forms are assembled in the casting pit, and reinforcing is being placed inside. The discharge end of the conveyor and the pouring cone are at the left.

Concrete delivered by the conveyor is fed into the form through the revolving turnhead spout while vibrators consolidate it in the forms.

After the placing process the conveyor is moved out of the way, usually over the next set of forms to be used.

Left: Pouring cone and hopper are removed, the tongue-forming header is placed, and a small surplus of concrete is vibrated into place and finished by hand-rotating the header.

The small excess of concrete allowed to build up around the top of the form becomes the tongue portion of the pipe when the aluminum tongue-forming header is lowered onto the top end of the form and vibrated. During vibration the operators rotate the header back and forth through an arc of about 90 degrees to produce a trowel action on the surface of the tongue projection.

The top header remains in place while the inner core form is stripped, by being drawn out vertically with a Whitney 1-ton chain hoist. This prevents any distortion or breakage of the projecting tongue of concrete as the core is stripped, and also results in a true alignment of the inner surface of the pipe at all points in its length. When sufficient concrete has been fed into the form to complete the pipe and tongue section, the conveyor with its rotating spout is swung out of the way, or over to the next pipe form to be filled.

An Erickson lift truck—a Model F-5 (5,000-lb. capacity) or an F-6 (6,000-lb. capacity)—then lifts the form, with the concrete pipe inside, out of the casting pit and carries it to the curing kiln. The two halves of the exterior form jacket are then unclamped and removed, with the pipe left standing in a vertical position, supported by the bottom steel pallet ring. The appearance of the surfaces of the pipe observed was exceptionally good, requiring little or no touching up at this point.

Two kiln rooms are used for curing the pipe, each being 20 ft. wide by 60 ft. long and having a capacity of about 40 30-in. diameter pipe. The walls of the kilns, built of 8-in. thick Waylite concrete blocks, are coated on the interior surface with an impervious asphalt mastic application, "Kiln-Cote", made by Moore Dry Kiln Co. The same company furnished the special insulated doors at

either end of the kilns. The 5-in.-thick regular concrete floors have radiant-heating copper pipe coils set in them at 24-in. centers. For insulation a 2-in. thickness of vermiculite (1 to 6 mix) concrete is placed below the wearing floor. The roof is built of creosoted lumber with 2 in. of glasswool insulation applied to the under (interior) surface.

Steam is generated in an upright boiler, and is used for heating the plant and for curing. The amount of steam, resulting in the predetermined temperature desired, is automatically controlled by Minneapolis-Honeywell temperature-humidity controls set to maintain 135 deg. F. in the kilns. The steam is exhausted at 50 p.s.i. into water kept in two trenches built into the floor at each side and running the length of the curing rooms. This method insures that a high moisture content is maintained at all points inside the kilns throughout the curing period of high temperature for 16 hours. Mr. Steiro estimates that each additional hour of curing beyond the 16-hour period eliminates the need for a half-day of outside stock-curing.

The strength of the concrete in the pipe is determined by making 6- by 12-in. test cylinders of the concrete used in making the pipe and curing these under identical conditions. A metal cylinder mold is tightly strapped to the outside form, so that as it is filled, it will receive the same degree and extent of vibration as the pipe it represents. One such test showed 3,390 p.s.i. strength after only the regular curing period of 18 hours at 135 deg. F.

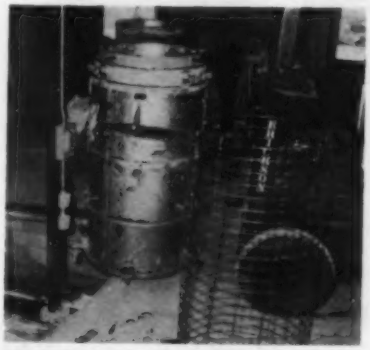
Absorption tests made by University of Wisconsin engineers for Mr. Steiro on pieces of concrete taken from the pipe which had been tested to ultimate failure, showed only 4.1 percent absorption, which is well under the limit of 8 percent permitted by A.S.T.M. specifications.

On the day of our call at this plant a 6-ft. length of 30-in. diameter pipe was tested by the three-edge-bearing method by a group of officials of the City of Madison and the Wisconsin State Highway Commission. The specimen was then only 18 days old, and it had had normal kiln curing of 16 hours at 135 deg. F., then open-air storage and an occasional wetting down with a hose. The shell thickness of the specimen was 3½ in., and the concrete had 3,000 p.s.i. compression strength. The first crack having a width of 0.01 in. for a length of 1 ft. or more occurred at a loading of 16,200 lb., this load meeting the requirements of A.S.T.M. specifications C 75-52 for this size and length of pipe, and for the compressive strength of the concrete. The ultimate load on this same specimen of pipe was reached at 24,500 lb., which also met these specifications.

The pipe is now turned, from a vertical to a horizontal position for handling it into stock storage, by means of the lift truck. The appearance of the surface of the pipe will vary slightly with the amount of water which is used in the mix. If too much water is used, there will be a bleeding of the cement grout out of the joining seams of the form. If not enough water is used, a rougher-textured surface will result. When the method of stripping as detailed here was followed, no damage was observed to the tongue-and-groove end projections. While the practice of tipping the pipe over onto a pile of automobile tires on the morning following its curing is no longer followed in this plant, Mr. Steiro stated that such procedure can be followed with safety.

Dick Henshaw handles the sales engineering of the product at this firm. The firm represents the Hoffman Company as exclusive franchise producer of Vibrapipe for the central and southern parts of the state of Wisconsin. Full inspection of its facilities, now in the minimum stage of production, is invited.

After tongue end has been formed, core is stripped vertically by chain hoist, the header remaining in place to protect the end.



The exterior jacket, containing the new pipe, is hoisted from the casting pit by the lift truck and carried to the curing room.

Concrete still on the conveyor belt is emptied and returned to the mixer. The mixer and batcher are in the left background.

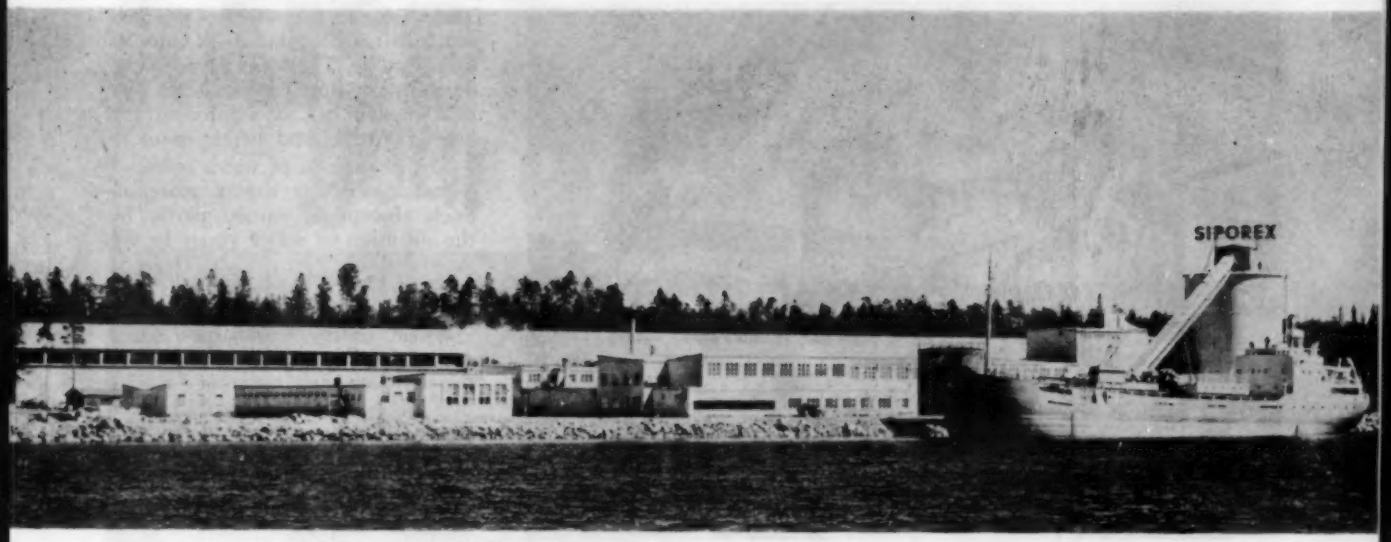
Right: Some 30-in. by 6-ft. pipe set in position for curing, with exterior jacket form removed.

Block Shrinkage Discussed In New Government Booklet

The results of a comprehensive study on shrinkage and other characteristics of concrete blocks when laid up in mortar to form masonry walls, are reported in *Shrinkage Characteristics of Concete Masonry Walls, Housing Research Paper 34.*

Believed to be the most extensive single piece of research to date in the field of concrete mansonry construction, the 57-page report may be purchased for 40 cents from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Addresses, a panel on advertising, and discussions were some of the highlights at the recent annual meeting of the North Carolina Ready Mixed Concrete Association, which was held recently at Sedgefield, N. C. Speakers included Vincent P. Ahearn (executive secretary) and R. C. Collins (president), both of the National Ready Mixed Concrete Association.



Newest plant of International Siporex Company at Skelleftehamn, Sweden.

A modern construction material originating in Sweden offers versatile applications of slabs, blocks, and beams

By ROY L. PECK

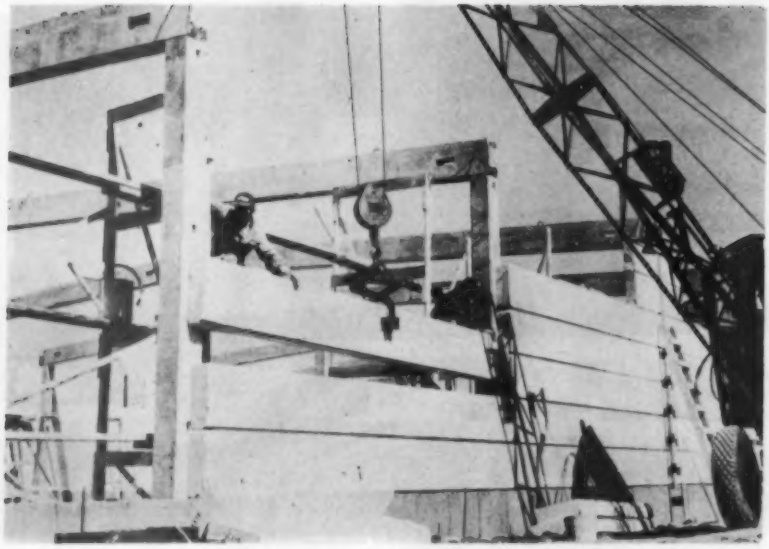
AN interesting and instructive talk on Siporex lightweight concrete was given recently at the meeting of the Southeastern group of the National Concrete Masonry Association at St. Petersburg, Fla., by Bengt Lundgren of International Siporex AB, Stockholm, Sweden. Mr. Lundgren flew over to attend this meeting specifically to present to the concrete producers some factual data on this versatile material. Siporex appears to be leading the European field in the use of insulating concrete. Well over 100,000,000 sq. ft. of Siporex slabs have been placed throughout the Continent since it was first introduced there.

The basic Siporex patents were taken out by Ivar Eklund, a civil engineer, and Professor Lennart Forsen, a leading chemical engineer, in the early '30s. Further development was carried out by the International Siporex Company of Stockholm, a firm affiliated with Skanska Cement AB, one of Europe's largest producers of cement and lime. Since then continuous research and new inventions have steadily improved production methods and widened the fields of application for the product. In Sweden, its country of origin, Siporex is now employed in one application or another for about 50 percent of all buildings being erected. Reinforced large-size slabs for roof, floor, and wall construction have been extensively used, and they are said to have accounted for more than 95 percent of all similar slabs which have been sold in Europe since Siporex was introduced.

Siporex is manufactured from the same basic materials as concrete—portland cement, sand, and water.

Casting beds for slabs and beams. The mixer (center left) and the overhead crane, running the length of the plant, are used to pour slabs and later handle them.

Placing floor slabs of lightweight concrete. These are usually made 18 or 20 in. wide and from 2½ to 8 in. thick in spans up to 20 ft. Units weigh 31 or 50 lb. per cu. ft.



Installing lightweight, insulating wall panels of Siporex concrete. These are attached to the structural framework of the building by metal lugs fitting into recessed holders in the columns.

Finely-powdered aluminum or other chemicals combined in the slurry mix cause the silica and cement or lime to combine chemically in cellular form. This composition—monocalciumsilicate—has several times the strength of concrete, but only a fraction of its shrinkage and swelling characteristics. The cell walls are microcrystalline in structure, each wall unbroken.

Slag, fly ash, and some other waste products can be used to replace (partially or totally) the main raw materials. Some general technical data on the material and some phases of its application are presented herein. Briefly, it is a structural material which can be made in slabs, blocks, and beams which provide high thermal insulation; are lightweight, low in absorption, expansion and shrinkage; have a fair degree of strength and chemical inertness; and can be handled with structural tools

The thermal conductivity (k) of Siporex in B.t.u.'s per sq. ft. per hour per degree F. temperature change ranges from 0.69 to 1.10 per inch of thickness of dry material with densities of from 25 to 45 lb. per cu. ft. Its insulating capacity is high and its heat transmission low. The overall coefficient of heat conductivity (U) for a concrete wall 6 inches thick with Siporex insulation of various thicknesses is tabulated below. The effect of humidity is allowed for by the addition of 20 percent to the k value of the dry material.

Thickness of Siporex insulation (in.)	3	4	5	6
Thermal conductivity U	.19	.16	.13	.11
Weight of wall (lb. per sq. ft.)	92	94	96	98
Thickness of solid brick wall of equivalent insulating value (in.)	18	23	28	32

(Example: A 6-in. concrete wall with 4 in. of Siporex insulation provides better insulation than a brick wall 23 in. thick.)

If made into building blocks, Siporex concrete of an average weight of 37 lb. per cu. ft. has the following heat conductivity (U) for various thicknesses of wall shown. (Thermal conductivity coefficient for such a wall is 0.97.)

Thickness of wall (in.)	6	8	10	12
Heat transmission coefficient	0.16	0.13	0.11	0.09
Weight per sq. ft. of wall (lb.)	31	38	45	52

(Example: A 10-in. thick Siporex wall weighing 37 lb. per cu. ft. has the same heat insulation as a brick wall 33 in. thick and is only 1/6th of its weight.)

These values are for a wall plastered on both sides, with allowance for heat loss through joints and humidity by the addition of 20 percent to the k value of dry material.

The weight of Siporex slabs, when quite dry, is 31 lb. per cu. ft. In the form of building blocks it can be made in three standard weights of 31, 37, and 44 lb. per cu. ft. Made into roofing slabs of various thicknesses weights will be as follows:

Thickness of slab (in.)	2¾	3½	4	4¾	5¾	6½	7	8
Weight, lb. per sq. ft.	10	12	14	16	19	21	24	27

The weight of floor slabs of the two standard types made are 31 and 50 lb. per cu. ft. The former is for light floors with short spans, while the heavier slab can be reinforced for heavier loading and longer spans.

The absorption of water is low—less than for any similar material. Such absorption, caused partly by the diffusion of water vapor in the air and partly by capillary action, is important and decisive in its effect, both as regards resistance to frost and heat insulation properties. There is practically no moisture movement through Siporex concrete, mainly due to the fact that the micro-cells are not interconnecting and have unbroken walls. A Siporex block or slab will float on water interminably. Between the fully saturated and dry condition shrinkage occurs only to the fraction of one percent, which is normally negligent for practical purposes. A number of tests have shown that the average shrinkage from fully saturated to a condition of constant weight in an atmosphere of 45 percent relative humidity is 0.1 to 0.5 percent by volume at all weights. The coefficient of heat expansion is 0.000008, which is a little lower than that of regular concrete.

The strength of Siporex concrete varies naturally with its density or weight. Being a homogeneous material, its strength is the same in all directions and is uniform. Insulating slabs will not have less than 280 lb. per sq. in. crushing strength, which is quite sufficient for ordinary conditions. Building blocks have strengths of 430 p.s.i. for unit weights of 31 lb. per cu. ft.; 560 p.s.i. for 37-lb. per cu. ft. units; and 700 p.s.i. for 44-lb. per cu. ft. units.

Certified tests made at the Swedish State Testing Institute show results for crushing loads in p.s.i. on walls 10 ft. high and 3 ft. 4 in. wide as tabulated below.

Some roof slabs of Siporex concrete, tested at the Royal Technical University of Stockholm, showed that there was no permanent set even after overloading, and that initial hair-cracks did not appear until 2½ times the working load had been applied. These slabs were designed so that the deflection did not exceed 1/400th of the span. The maximum spans at this designed deflection limit varied from 6 ft. 6 in. for a 2¾-in. thick slab weighing 10 lb. per sq. ft.,

Thickness of Wall (in.)	37 lb. per cu. ft. Wall	Cube	Mortar	44 lb. per cu. ft. Wall	Cube	Mortar
8	144	310	211	194	367	203
10	137	277	230	166	357	242
12	161	277	173	194	349	231

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WARNER COMPANY, Philadelphia, Pa. This battery of conical bins is part of a huge loading facility. Bins may be charged with a gantry crane or conveyor. Material is discharged through openings controlled by large gates to waiting trucks below.

WARNER COMPANY'S Central Mix Plant at 51st Street and Schuylkill River, Philadelphia, Pa. Comprised of 3 cu. yd. mixers, 4 aggregate bins and 2 cement bins. Materials are delivered to bins by 30" belt conveyor and the 2 storage bins for cement are served by a large capacity screw conveyor with a super capacity vertical bucket elevator. Another Fanning-Schuett installation.

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For **KERN-O-MIX, INC.,** So. Orange, N. J. Additional storage capacity for ground lime; unloading machinery, storage bins and screw conveyor.

For **DELRAN CONCRETE CO.,** Riverside, N. J. Two large inclined belt conveyors.

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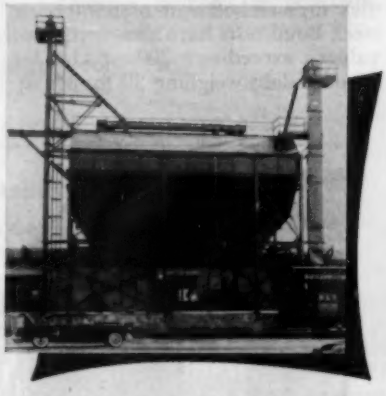

FORMIGLI BROTHERS, INC., Berlin, N. J. A concrete "products" plant. Principal items are roof slabs, floor slabs, concrete girders for highway bridges, etc. Design, fabrication and erection by Fanning-Schuett.

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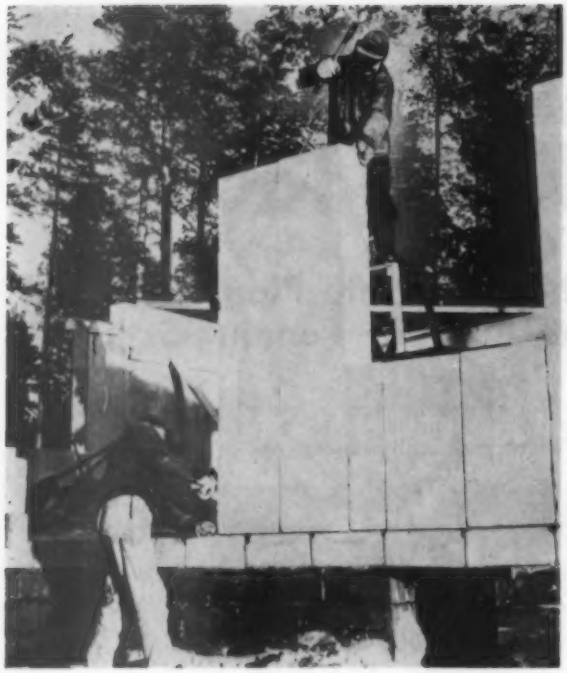

In placing wall panels vertically the slabs are dowelled into recesses set in the Siporex floor members. They are reinforced, nailed to each other, and jointed with mortar. Window and door frames are nailed to the walls and piping conduits are chased by hand.

to 19 ft. 6 in. for an 8-in. slab weighing 27 lb. per sq. ft.

In general, roof slabs with a density of 30 lb. per cu. ft. are designed to carry live loads of from 15 to 60 lb. per sq. ft. for spans up to 20 ft. Floor slabs have a density of from 30 to 45 lb. per cu. ft. for all common load requirements. Wall slabs weigh 30 lb. per cu. ft. and are designed to resist vertical loads and wind pressures. Slabs are generally made 18 or 20 in. wide, 2½ to 8 in. thick, and 3 ft. to 20 ft. long. Other sizes up to 5 ft. wide are made to engineered requirements. They are accurate in thickness to 1/48-in. Production methods are followed which give firm embedment of reinforcing steel. Bond tests have shown rupture values exceeding 200 p.s.i. for Siporex slabs weighing 30 lb. per sq. ft.

In solid form the material has a compressive strength exceeding 20,000 p.s.i. In its cellular form it can be given any density and strength to meet the requirements of a structural material. In general, Siporex slabs for roofs or floors weigh only 1/4 to 1/3 as much as concrete slabs designed for the same live load and span. In this way they save field labor in installation and reduce the dead load on structural framework and foundation, therefore also lowering the cost of these integral members. They provide a dry floor immediately ready for finished flooring.

Beams and lintels can be made with Siporex concrete, with reinforcement provided for practically any length up to 40-ft. span, though generally produced for a span of 12 ft. and loads up to 1,000 lb. per lineal foot of beam. These are delivered from the factories ready for erection, thus expediting the building progress by eliminating the time required to make and place form work and cast the lintel or beam required. For long spans, beams having large-area reinforcement and shear stirrups welded to the top and bottom steel can carry heavy loading.

The composition of the material is such that it is free from active chemicals which might cause corrosion, rusting or cracking. It is chemically inert and does not affect the steel reinforcing. In common with other siliceous materials, it is incombustible. Its color is white, and in many instances wall slabs or floor or roof panels require no further decorating. It can be nailed, sawn, hewn, and drilled like wood members. Cutting chases for pipes presents no problems.

Cost savings achieved by the use of Siporex lightweight concrete can be summarized as follows: it competes favorably in price with other building materials used for the same purpose; it provides its own insulation while functioning as a structural material; it saves in field labor as it requires fewer man-hours to install; it saves in structural framework because of its light weight; it speeds up the construction schedule, being a dry, pre-fabricated unit; it requires the minimum of surface treatment as it is smooth and white in color; and it requires no heavy machinery to set it in place.

Siporex plants are now operating in many countries of Europe. There are five in Sweden, three in Poland, two in Germany, and single plants in Denmark, Finland, Norway, and France. Manufacturing licenses have also been granted to firms in Canada, Mexico, Venezuela, and the Belgian Congo. Bror Sjogren is president of International Siporex Co., and Bengt Lundgren is manager of the foreign department.

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*** VALUE STANDARD OF THE INDUSTRY**

Mid-West Ready Mixed Concrete Assn. Sponsors 7th Annual School for Operators

Harry Gonnerman, former director of the Portland Cement Association's research laboratory, Chicago, Ill., presented a talk on the topic "Why Air Entrainment?" at the Mid-West Ready Mixed Concrete Association's school for operators.

THE Mid-West Ready Mixed Concrete Association, in co-operation with the Portland Cement Association, held its seventh annual school for operators at the Drake Hotel, Chicago, Ill., on December 28 and 29, 1954. Attendance reached 180, the largest number ever participating in this highly instructive 2-day meeting. Maintenance of concrete equipment and the know-how of good concrete were emphasized.

The Tuesday morning session opened with the showing of an educational film entitled *The Man with a Thousand Hands,* offered by International Harvester Co., Chicago, Ill. E. A. Mueller, district service supervisor for International, presented a paper on the maintenance of the motor trucks used by ready-mixed concrete operators. He emphasized the importance of preventive maintenance and the installation of service record cards covering all units of a fleet.

The relationship between mixer maintenance and quality concrete was the subject of an interesting talk by R. P. Bremner, sales manager of T. L. Smith Company, Milwaukee, Wis. He dealt specifically with the problems of maintenance of plants, drum blades, paint on truck mixers, and greasing. He also detailed the qualities which should be sought for in truck drivers. He emphasized that in many instances quality in concrete is built into it somewhere on the highway between the plant and the job, and called attention to the damage which can occur when drum blades are permitted to wear beyond a safe point. He suggested operational practices which should prove of value to every employee of a ready-mixed concrete organization.

The use of calcium chloride—and its limitations as a cure-all—in ready-mixed concrete was described by G. D. Jordan, Solvay Process Division, Allied Chemical and Dye Corporation. L. P. Galway, Technical Service Department, Zonolite Company, Chicago, Ill., discussing vermiculite as an aggregate in ready-mixed concrete, included the definition of the material; its production; its characteristics as to strength, weight, and yield; and its increasing popularity in the field of insulating and lightweight concrete.

These four preceding speakers formed a panel as a concluding feature of the afternoon and answered questions from the audience on their respective subjects, with D. C. Hay, president of the association, serving as moderator on this "Stump the Experts" phase of the program. During the annual dinner Charles E. Bliss entertained the operators with diversions of an extra-curricular nature.

Wednesday's sessions were devoted to subjects pertaining to the production of high-quality concrete. Wayne Wallace, P.C.A. district engineer, Chicago, in the opening address, drew a memorable picture of Russia's road-building methods. The construction of a highway connecting that country with Tibet, he declared, required the work of 6,000 camels, 6,000 ponies, and 120,000 men and women, laboring for several years. With this picture he contrasted the more efficient way in which such a project would be handled here. He reviewed the growth of the ready-mixed concrete industry, citing public interest, self-education, technical improvement, and quality concrete as the influencing factors mainly responsible for the high production standards and confidence it now enjoys. He warned his audience that each of these factors is indispensable in upholding the status of the industry. He urged that new fields of use be explored as a safety measure against the possibility of a loss of the normal construction volume now served by ready-mixed concrete.

J. H. Banker, P.C.A. construction superintendent, implemented his talk with down-to-earth advice on the way to gain concrete know-how on the average construction job, a subject pertinently interesting to the operational personnel present. He also presented a second paper on cold weather concreting.

Harry Gonnerman, former director of P.C.A.'s research laboratory, closed the afternoon session with an authoritative discourse on air-entrainment, offering his hearers many interesting sidelights on the subject, drawn from his many years of experience in concrete technology.

A considerable portion of the morning program included two sets of demonstrations in making quality concrete. These were given before a very interested audience by G. S. Stepanek and H. J. McGinnis, P.C.A., field engineers, Chicago, Ill. The first demonstration showed the effect on quality of varying the cement content, while the second demonstrated the importance of the amount of water in concrete. Prizes were presented to those who could best appraise the make-up of a group of concrete specimen slabs. In each of these the various ingredients or methods had been changed from the normal amount, so that the concrete varied in quality.

Officers and directors of the Mid-West Ready Mixed Concrete Association: D. C. Hay (Kuert Concrete, Inc., South Bend, Ind.), president; L. L. Shidler (Triangle Construction Company, Kankakee, Ill.) vice-president; R. J. Hummel (Consumers Company, Chicago, Ill.), director; and R. E. Hutchins (Terre Haute, Ind.), secretary.

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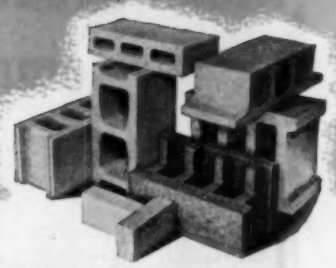

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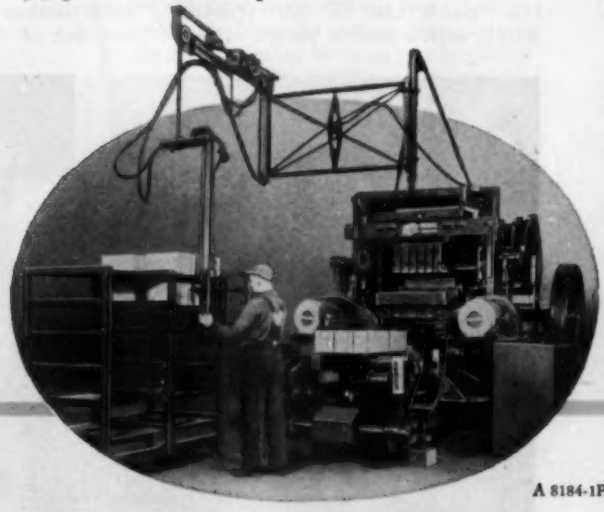
Every block maker knows how the Besser Company pioneered perfection in concrete block . . . always striving to help the industry produce better block on a faster, high-production basis. But the Besser Company doesn't only design and build block making equipment. Besser also promotes the sale of block.

In all principal architectural and building papers, Besser advertising is telling the entire industry all the facts about this modern masonry material. Millions of Besser ads are pre-selling the products of VIBRAPAC Block plants throughout the world, thereby boosting the demand for block and increasing sales.

No doubt about it . . . the mounting trend toward VIBRAPAG Block and BES-STONE Split Block for exteriors and interiors is solidly founded on Besser's continuous promotion, plus highest standards of beauty, permanence and other qualities of VIBRAPAC Block.

Besser Helps You Produce High-Quality Block—Faster!

A Besser Vibrapac produces three 8" x 8" x 16" modular block at a time on ONE Plain Pallet. Other units, made in equivalent multiples, on the same set of Plain Pallets. Fully automatic. One man removes finished block with power off-bearing hoist, and, with no lost motion, returns empty pallets to the Vibrapac machine.



Ask your nearby Besser representative to help you produce and sell more quality block. No obligation. Write today.

BESSER Company

BOX 131 • ALPENA, MICHIGAN, U.S.A.

Complete Equipment for Concrete Block Plants

A 8184-1PBC

PROMOTERS OF HIGH QUALITY CONCRETE MASONRY FOR MORE THAN A HALF CENTURY

Block Producers of Wisconsin Condemn Price Cutting, Advocate Group Promotion

THE EVILS of price-cutting were thoroughly emphasized in all talks at the 35th annual convention of the Wisconsin Concrete Products Association, held at the Plankinton Hotel in Milwaukee on January 12 and 13. The benefits of group action to maintain the industry's enviable position, were also stressed by the speakers. In a thought-provoking address Fred Yahr, retiring president, urged his hearers to take immediate stock of the concrete block situation in the state, "to stop long enough to find out where we are going."

Registration, a business meeting, and appointments of committees occupied the first morning of the convention. During the afternoon session Fred Yahr, who is also president of the West Bend Concrete Products Company, West Bend, Wis., then presented his talk. He suggested that the producers are not doing enough for their industry or association; they have adopted the short-sighted viewpoint solely concerned with production, and many have forgotten how to sell what they have perhaps over-produced. He decried the complacency which is apparently on the up-swing throughout the industry. He cited a state-wide 2-cent-a-block price cut amounting to $400,000 annually in an industry which evidently demurred at underwriting a $10,000 fund for a two-year promotion project. He explained how much can be accomplished jointly with a modest budget of promotion. According to his hearers' comments, Mr. Yahr's talk was well received.

The group elected Loyal Clark, Wausau Concrete Products Company, Wausau, as president for the coming year. Other officers elected include Carl Thompson, Thompson Concrete Products Co., Kenosha, vice-president; Cecil Hemstock, Hemstock Bros., Sparta, second vice-president; Edwin Bartlett Jr., Best Block Co., Milwaukee, secretary; and William Menard, Economy Block Co., Milwaukee, treasurer. Three new directors were also elected for the next three years: Ray Minette, Berthelet Fuel and Supply Co., Milwaukee; Cecil Hemstock; and Eugene Kleist, Kleist Block Co., Eau Claire.

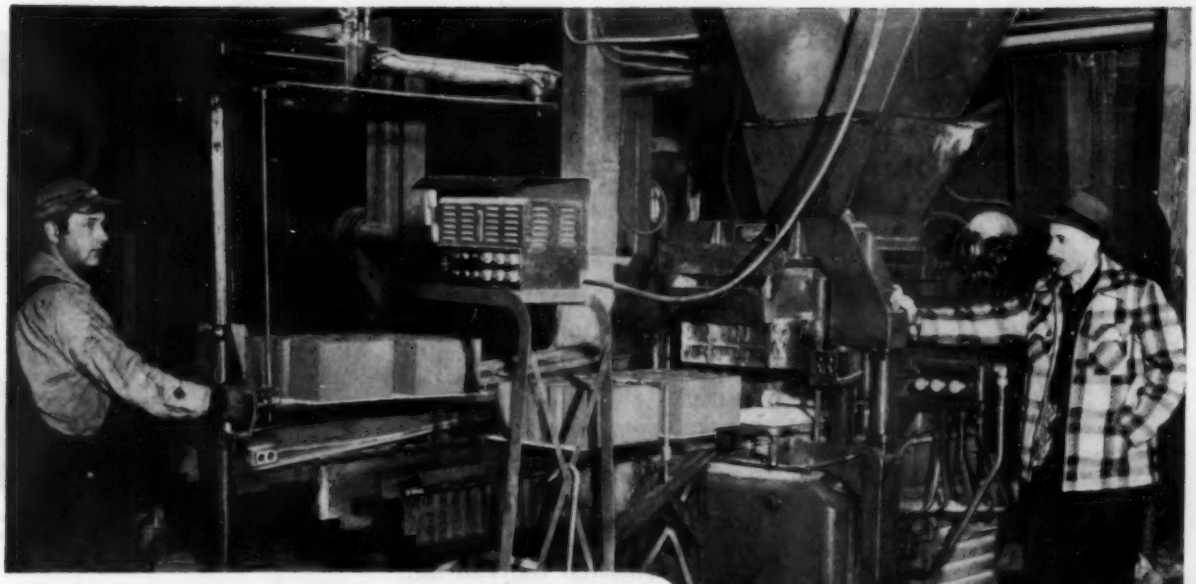
Ray Minette, with fine enthusiasm for his subject, presented salient facts on promotion and advertising. He indorsed Fred Yahr's contentions and reviewed the good attained from the concrete masonry home design contest investment of last year. In praising the promotion work achieved by the National Concrete Masonry Association, he urged the importance of a big educational program within the state. Such a campaign, to be effective, he said, must reach deep into the existing farm and industrial markets while also covering the "fringe" customers heretofore probably considered negligible by most producers. He urged that every member of the association take on as an individual duty the enrollment of Wisconsin producers who are not now members.

Fred Yahr (West Bend Concrete Products Co., West Bend, Wis.), retiring president, Wisconsin Concrete Products Association, wishes good luck to the incoming president, Loyal Clark (Wausau Concrete Products Co., Wausau, Wis.), as Ray Minette, retiring president beams approval.

Jesse H. Besser, president of the Besser Company, Alpena, Mich., recalled in his talk the happenings of note in the 50-year period of his activity in the industry. He recollected that the initial meeting of the national group, now the N.C.M.A., was held in Milwaukee 49 years ago. He declared that block makers of those days found it harder to sell the 200-per-day output of a machine than they now experience in selling the average 8,000-unit daily production. Admittedly praising the know-how of the industry in production, he set a goal toward which every producer must strive—that of creating a better understanding of the capabilities of concrete masonry units on the part of owners, engineers, and architects, and builders to produce walls as nearly crack-proof as possible. He feels that many of these persons, in the rush of business, are not cognizant of the potential beauty of concrete units expertly laid in a

Left: Four old-timers talk things over — Paul Woodworth (Waylite Co., Chicago, Ill.), E. W. Dienhart (executive secretary N.C.M.A., Chicago, Ill.), L. S. Brodd (P.C.A., Wauwatosa, Wis.), and Henry Buchholz (Illinois Brick Co., Chicago, Ill.).

Right: Jesse H. Besser, president of the Besser Company, Alpena, Mich., reviewed the progress of the industry in an interesting way.



Columbia Model 8 (2-block) machine is shown in operation at plant of Western Block Company, Portland, Oregon. Note control box accessible to man operating offbearer. Inset shows Cal Felmley and his mother, Mrs. Ethel Felmley, co-owners.

CAL FELMLEY

WESTERN BLOCK CO. ☆ *Pumice Blocks* . .

"STRONG LIGHT WEIGHT PRECISION MADE PUMICE BLOCK

6330 S. E. 101st at FOSTER
PORTLAND 66, OREGON

TAbor 6016

Mr. Fred Neth, President
Columbia Machine
107 S. Grand Avenue
Vancouver, Washington

Dear Mr. Neth:

We installed a new Model 8 fully automatic Columbia machine, offbearer and pallet return with cleaner and oiler in August, 1953. The increased production is very gratifying, as we are getting from 4 to 5 cycles per minute. But to us the greatest assets of the Columbia machine are:

1. Positive height control.
2. Trouble-free hydraulic operation.
3. A very simple electronic control of every stage of a cycle, including height.
4. A very easy machine to clean and oil.
5. Last but not least--a very small repair parts bill.

I can recommend this machine as the best way to High Production and Top Quality, which means profit in the block business.

Sincerely yours,

Cal Felmley

Columbia...

"...the best way to high production and top quality"

Says Mr. Cal Felmley of Western Block...

Talk to Mr. Felmley a few minutes, and you'll discover why he's such an enthusiastic Columbia rooter. He likes the way Columbia helps its customers set up their plants, taking full advantage of Columbia's flexible and complete line of equipment. He likes the extra-prompt service he gets whenever he has a production or operating problem.

He says the Columbia machine is everything it claims to be—fast, accurate, precision-controlled, easy to clean and maintain, quick to change from one type of production to another; rugged under continuous operation; and perhaps most important, *really automatic.*

For complete information about Columbia machines, write, wire, or phone for catalog and literature.

Columbia MACHINE

Home Office: 107 S. GRAND, VANCOUVER, WASHINGTON

Factory Branch and Warehouse at Mukwanago, Wisconsin

District Offices in: Wisconsin, Ohio, South Carolina, Mississippi, Florida, New Jersey, Virginia, California and Massachusetts.

Earl Peterson (Ideal Cement Stone Co., Omaha, Neb.), a guest speaker, told of the values of an association in times of keen competition.

wall. He described what his company is doing toward furthering this appreciation by constantly adding new display panels to its exhibition building in Alpena.

In the evening a cocktail hour and dinner afforded relaxation to the producers, their wives, and friends. Dancing until midnight followed an entertaining stage show.

On Wednesday morning, Earl Peterson, Ideal Cement Stone Co., Omaha, Nebr., spoke on the value of an association in times of keen competition. He broke down the total costs of a 20-cent concrete block into the following items: cement, 4 cents; sand and gravel, 4 cents; plant overhead, 2 cents; factory overhead, 2 cents; general administration, 3 cents; selling expense, 1 cent; delivery cost, 3 cents; profit, 1 cent. This breakdown showed how the narrow profit margin can be erased by even a slight price-cutting, reminding his listeners that such practice helps no one but the chiselling buyer. He urged frequent and regular discussions among local producers in order to promote mutual confidence and discourage price-cutting. He cited instances of how Nebraska producers corrected their shortcomings through co-operative discussion at local levels.

C. A. Serrine, executive secretary, Michigan Concrete Products Association, the next guest speaker, presented an instructive paper on the benefits of control joints and wall reinforcing in preventing or lessening wall cracking. He showed a series of slides illustrating good and bad practice. The extra cost incurred

C. A. Sirrine (executive secretary, Michigan Concrete Products Association), covered the use of control joints and wall reinforcing.

in such a procedure will prove a valuable investment in the long run, he claimed. Use of control joints and wall reinforcing should be recommended to the designer of a building prior to the preparation of plans in order to be effective. Mr. Serrine feels that it is preferably a function of group promotion to dispel the designer's natural aversion to anything which he feels would detract from the appearance of his wall structure.

The concluding afternoon session included a critique of visual selling, startlingly presented by an able team of three "Horsemen of Sales", composed of Al Herr, Al Herr Advertising Agency, Les Falk, vice-president, Wisconsin Ice and Coal Company, and Jim Dornoff, vice-president, Pate Oil Company, all of Milwaukee. Themes of this new art of selling described included the use of pictures, color, action, motion, dynamic demonstrations, and word-vividness to create the quick interest so necessary in persuading the harried buyer of today. Mr. Dornoff's concluding plea was "Use words that you can see!"

Texcrete Co. of West Texas Opens Plant at Sweetwater

The Texcrete Company of West Texas recently held open house at its newly completed $250,000 plant at Sweetwater, Tex. Full-scale production of 1,500,000 units annually is expected to be reached early in 1955.

According to D. R. Nelson, Texcrete representative at Abilene, Tex., the new plant is the 30th facility operated by the parent company, Texas Industries, Inc., of Dallas. Products will be expanded-clay and shale masonry units and Holiday Hill stone.

enjoy PreCaster profits
from hard-to-make units like lintels

Be the first in your market to offer quantity production prices on concrete units that will strip through a straight box . . . slabs, highway guard rails, fence posts, joists, etc. *Relatively low investment! One man operation!* Write PreCaster Inc. · 5209 Beech Street · Cincinnati 17

To the Concrete Pipe and Allied Industries

24 MONTHS ago we introduced for the first time in the United States, the VIBRAPIPE method of making concrete pipe through the scientific application of low frequency, high amplitude vibration — especially suited for larger pipe sizes, using a semi-dry lean concrete mix for immediate stripping.

To our friends and foes alike, and to the Trade Publications that have reported our progress, we express most sincerely our gratitude for their help in bringing this new method of pipe manufacture to its present perfection.

We humbly admit our human limitations of having failed at earlier hours on important details. But at no time have we failed to help in making every VIBRAPIPE installation perfect and foolproof.

Our continued efforts towards further simplification are offered to all—customers and competitors. We have, today, 15 VIBRAPIPE plants in operation in the United States alone. More are in operation or under construction in Canada, and there are many installations, big and small, throughout Central and South America and elsewhere in the world.

Scientifically-applied vibration will eventually change all the concrete industries. Progress cannot be stopped! Today, we are only at the beginning of this development. All our efforts and assets are dedicated in an unbendable determination to serve anyone in need of making concrete pipe as a small contribution towards making the world a better, healthier and happier place in which to live.

GEORGE W. HOFFMANN CO.

Concrete Pipe Forms — Vibrators and Concrete Mixers

P.O. BOX 452 **SIOUX CITY, IOWA U.S.A.**

Now . . . a Full Range of New *Champions*

3 4 5 6 Yds.

M-6

M-5

M-4

M-3

Whether you need a whole new fleet or a single mixer, it will pay you to investigate the sound engineering, simple design, and full payload features of the CHAMPION.

Scores of ready-mix operators have "changed to Champions" in the last five years. The reason is simple—CHAMPIONS cost less to buy, less to operate, less to maintain.

Get ALL the Facts Before You Buy!

CONCRETE EQUIPMENT MANUFACTURING CO., INC.

5437 Tweedy Blvd. South Gate, Calif.

Trade Notes

Paul Klemens

Paul Klemens, assistant sales and export manager for Columbia Machine Company, Vancouver, Wash., will leave New York early in February for an extended sales trip through Latin America.

His itinerary will include the Bahamas, West Indies, Venezuela, Colombia, Ecuador, Peru, northern Chile, Buenos Aires, Rio de Janeiro, northern Brazil, the Guianas, Panama, Central America, and Mexico City, in that order. In Ecuador he plans to inspect the latest Columbia machine installation made there.

Because of the growing popularity of a unit offered by the Builders Equipment Company, Phoenix, Ariz. —its Superlite Unloader—this firm has found it necessary to move to new and larger quarters. The new address of Builders Equipment is 3810 North Central Avenue, Phoenix.

N.R.M.C.A. Convention

(*From page* 170)

he said, should be a big help, as it shows how carefully ready-mixed concrete must be made and demonstrates what should and should not be done. Producers, he said, should show the film at meetings of all kinds in their marketing area. Its theme is: *Quality Concrete is Your Most Important Product—Jealously Guard That Product.*

TECHNICAL AND ENGINEERING DEVELOPMENTS

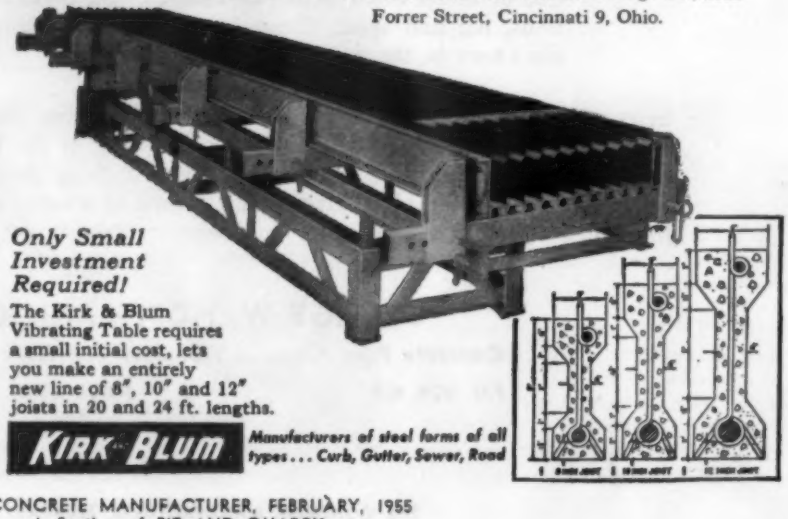
Four excellent papers were presented at the technical and operating problems session. These included *Effect of Curing Condition on Strength Tests of Concrete* by D. L. Bloem, N.R.M.C.A. assistant director of engineering; *Ready Mixed Concrete as Viewed by a Consulting Engineer* by Miles N. Clair, Boston, Mass.; *An Operator Trained as a Concrete Research Engineer* by Fred F. Bartel, Tews Lime and Cement Co., Milwaukee, Wis., and *Specifying Bases for Acceptance of Ready-Mixed Concrete* by Stanton Walker, N.R.M.C.A. director of engineering. Summaries of these papers will be presented in the March issue of the CONCRETE MANUFACTURER.

Add a New Profit-Maker

Increase Your Volume

PRODUCE CONCRETE JOISTS, LINTELS AND FENCE POSTS with the KIRK & BLUM HEAVY DUTY VIBRATING TABLE . . .

Your experience in the building trade should make it easy to build up a profitable business in this new line. The products are simple to make, have unusual strength, are termite proof. The KIRK & BLUM Type "S" Heavy Duty Vibrating Table is capable of multi-production of concrete joists, allowing a fine profit-margin. Easily produced by unskilled operators. For complete details and prices, write to The Kirk & Blum Mfg. Co., 3112 Forrer Street, Cincinnati 9, Ohio.



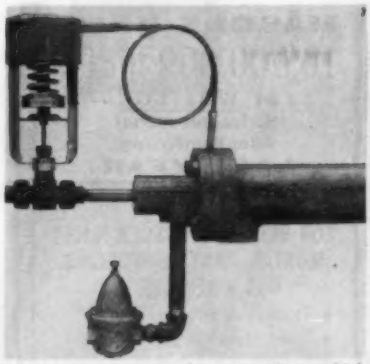
Only Small Investment Required!

The Kirk & Blum Vibrating Table requires a small initial cost, lets you make an entirely new line of 8", 10" and 12" joists in 20 and 24 ft. lengths.

KIRK-BLUM *Manufacturers of steel forms of all types . . . Curb, Gutter, Sewer, Road*

CM New Machinery and Supplies

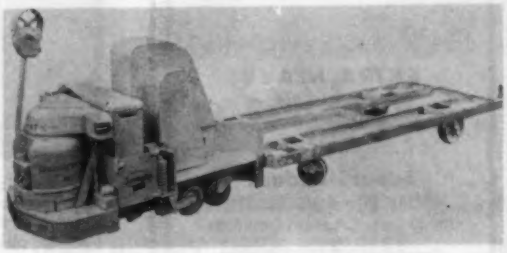
● Truckstell's revolutionary swivel frame makes it possible for the front and rear halves of a truck to rotate to either side independently. The concern says all wheels are kept firmly on the ground thereby increasing its maneuverability and eliminating frame twist. The frame consists of a steel box section fastened to the forward half of the truck frame, a similar section fastened to the rear half; and both joined by a high-strength alloy steel tube which acts as a swivel point. ←(101)

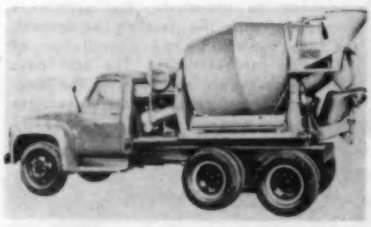


● A new steam and water mixer, which utilizes full heat energy by injecting steam directly into the water, has been developed by Fulton Sylphon Division of Robertshaw-Fulton Controls Co. This new mixer contains a powerful thermostatic assembly for accurate control of water temperature. It shuts down in the event of failure of water supply. ▲(102)

● Root Spring Scraper Co. has introduced a moderately priced truck front end, hydraulic boom-type lift which is handy for placing pre-cast concrete items. Of cantilever construction, it is capable of lifting 1500 lb. which can be swung in a 40 degree arc. All operations are controlled from the cab and the operator has full view of work at all times. ▲(104)

● Industrial trailers can be coupled or uncoupled in 2 seconds with this new operator-led tractor with a universal grip introduced by the Automatic Transportation Company. Called the Uni-Grip, the tractor is said to be the only one of its kind that will couple to any trailer without use of special adaptors. →(103)





● A new standard 3½-4 yd. truck mixer on single-axle trucks is being made by The Jaeger Machine Co. On lightest tandem-axle trucks, 4 to 4½ yd. legal payloads are achieved. Up to 50% fuel savings are offered with its 4-cylinder engine which operates within maximum torque range. A 3-speed Warner industrial transmission gives a wide-range of forward and reverse drum speeds from 1½ to 16 rpm within economical engine speeds of 800 to 1600 rpm. ▲(105)

FEBRUARY, 1955

MORE INFORMATION PLEASE

THE CONCRETE MANUFACTURER
431 S. DEARBORN ST.
CHICAGO 5, ILLINOIS

Please send more information on items described in editorial columns of this issue, as circled below.

101 102 103 104 105 106 107 108 109 110
111 112 113 114 115 116 117 118

Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

MASONS USED
10,000,000 FEET
of WAL-LOK
Horizontal Mortar
Joint Reinforcing
LAST YEAR

FOR BETTER, STRONGER WALLS . MORTAR JOINT REINFORCING IS A NECESSITY

- To minimize shrinkage cracks.
- To withstand side pressure.
- To increase wall strength.
- To reduce cracks caused by foundation failures.

The effectiveness of any reinforcing depends not only on the strength of the wire but also on its bond to the mortar. For maximum bondage to mortar, ALL WAL-LOK stretcher rods are deformed and knurled, cross bars project and are galvanized.

NOW **2** GRADES and CORNERS

EXTRA HEAVY
3/16 inch Side Rods
No. 9 Gauge Galvanized Cross Rods
and

SuperStandard
No. 8 Gauge Side Rods
No. 10 Gauge Galvanized Cross Rods

Convenient 300 FOOT Bundles
(25-12 foot sections)

BOTH WAL-LOK GRADES COMPLY
with the recommendations of National Bureau of Standards Bulletin No. 3079 and A.S.T.M. Spec. No. A82-34.

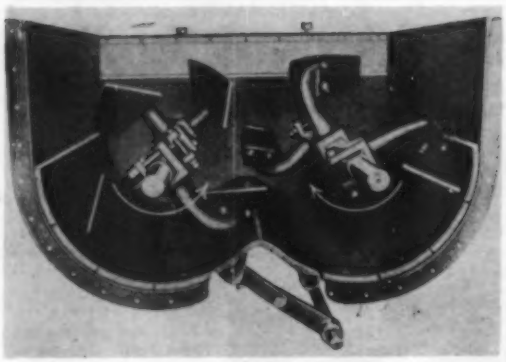
POSITIVE PROOF
Tests conducted by the Research Foundation of the University of Toledo offer positive proof of these statements. To our knowledge, Wal-Lok is the only horizontal mortar joint reinforcing based on scientific research

COLD PROCESS PEENING
The cold process of peening to deform and knurl, developed by Adrian Peerless, is the one method that does not impair tensile strength.

WRITE TODAY for your copy of the Adrian Peerless 4-page folder on Wal-Lok. It contains the data from the Research Foundation tests, specifications, additional advantages and further information about Wal-Lok masonry wall reinforcing mesh.

WAL-LOK

ADRIAN PEERLESS, INC.
1498 E. Mich. St., Adrian, Mich.



● The mixing drum and twin-axis paddle of this George W. Hoffmann Co. "Speedmixer" assure a concrete preparation of exceptional completeness. The cement coating of all aggregates is performed practically in suspension. There is no wear on the drum liner plates since it is absorbed by the paddles which are easily replaced. ←(106)

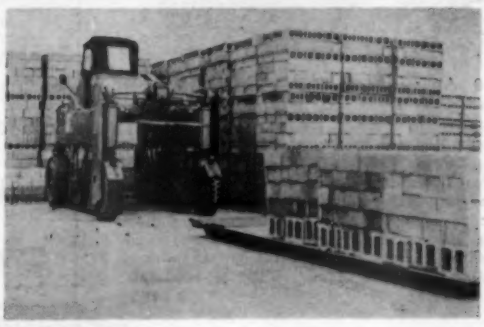
● By adding Shure-Bond to any standard mixture of concrete, plaster, or mortar, an increase in tensile strength of 400 to 500% is claimed by its manufacturers. Shure-Bond is a plastic synthetic resin in a specially formulated emulsion form which increases the abrasion, corrosion, and impact resistances of the mixture many times over. →(108)

● A new liquid meter register which automatically stamps a ticket with the number of gallons or pounds of liquid ingredients delivered to a batch or process has been announced by the Neptune Meter Co. Providing closer control over quality and inventory, the new Print-O-Meter also prints letters and serial numbers on the ticket to identify the operator and the batch. The machine is dust- and tamper-proof. ←(107)

● With the addition of a 6-cu. yd. model, Concrete Equipment Mfg. Co., now has a full range of "Champion" truck-mixers, the smallest being a 3-cu. yd. model. The rugged drum design eliminates troublesome hatches and hard-to-maintain rear seals. ←(109)

● By combining up to 10 chemicals in a single ball briquette, the Nalco 400 System treatment for boiler feedwater eliminates mixing, weighing, and complicated feeding procedures for boiler operators. This new simplified system offered by the National Aluminate Corp., is designed to treat feedwater for boilers operating up to 300 psi. In addition to chemicals, the system is complete with the feeding equipment, testing apparatus, and consultation of a Nalco representative. The user pays for the chemicals, and receives the feeding equipment and advisory services free. ←(110)

● Emphasis on efficient materials handling techniques and use of a straddle carrier to make direct-to-job-site deliveries are two ways in which a small Ohio building supply dealer meets and beats competition from larger dealers. By using the easily handled Clark straddle carrier, he is able to handle 5 cubes, or 450 blocks, at one time. Use of the carrier makes prompt delivery possible and also eliminates the time and cost of unloading at the job site. →(111)



New Literature

AUTOCLAVE SYSTEMS for the high-pressure curing of concrete blocks employing the *Wm. Bros. Boiler & Mfg. Company's* "Single Responsibility" concept is covered in this brochure. It includes information, diagrams, and photos of the system which includes autoclave vessels, packaged boiler, racks, etc. **(112)**

CONCRETE RELEASE AGENT. Edi-Cote #103 is an emulsion of waxes and oils made by *Edick Laboratories* which when applied forms a protective film on metal surfaces exposed to concrete build-up in the daily manufacturing process. Although concrete will build-up on exposed metal surfaces with Edi-Cote #103, it will not form a bond which can be removed only by chipping. **(113)**

LINTELATORS which produce strong lintels with block texture are available as *Kent Lintelators.* They afford the fastest, least expensive method of producing quality lintels. **(114)**

TEST HAMMER. Because of its simplicity, the *Schmidt* concrete test hammer can be used to determine the quality of concrete at all accessible locations in a structure. It makes possible non-destructive tests of structures at specific locations under job conditions during the curing period. **(115)**

GUNNING EQUIPMENT which helps you build, repair, and maintain is available in the new Bondactors made by the *Air Placement Equipment Co.* It is ideal for the gunning or air placement of concrete, refractories, insulating concretes, and wet or dry sandblasting. **(116)**

CUSTOM FABRICATION of aggregate bins, functional silos, elevators, conveyors, complete concrete plants, and many other pieces needed for your plant additions or reconditioning are offered at a reasonable price by the *Continental Boiler & Sheet Iron Works.* **(117)**

SAWS AND BLADES for masonry cutting are featured by the *Champion Mfg. Co.* Several models are available for wet or dry cutting and all are equipped with their new voltage selector switch and novel cutting head. Also described are the firm's exhaust fan and three cutting blades. **(118)**

no better mixer at ANY price!

The new ROCKET

Yet costs less...

FEATURE FOR FEATURE, YOUR BEST BUY!

HYDRAULIC CHUTE CONTROL eliminates man-handling. Controls grouped for easy access. NO EXTRA COST!

ALUMINUM CHUTE cuts weight two-thirds! Easy to handle. Extra extension gives new longer length.

REVOLUTION COUNTER built in, so you can handle any specifications with the Rocket!

SPECIAL ALLOY, abrasion resisting steel used at all wear points.

UNOBSTRUCTED HOPPER, for fastest charging, no spilling or waste.

POSITIVE CHAIN DRIVE flexible power, not affected by truck twist, road shock.

STANDARD INDUSTRIAL ENGINE, truck-type transmission. Repair parts available at nearly every garage or repair shop.

THREE-POINT SUSPENSION, one-piece cast steel precision machined ring.

...far less than other comparable high-quality truck mixers!

Frankly, there are a lot of good truck mixers on the market today. The Rocket is one of them. We're not claiming that the Rocket is by far the best, but it's a *fact* that you can't buy a *better* truck mixer—anywhere!

You'll be pleasantly surprised to learn that the Rocket actually sells for many hundreds of dollars *less* than most truck mixers of comparable dependability, ruggedness. And it's economical—good for many years of trouble-free operation.

The reason you save substantially is that the Rocket is sold *directly to you.* There are no middle-men. What would be your distributor's profit is passed along to you in the form of savings.

If you are efficiency-wise and economy-minded, but insist upon the best equipment money can buy, then the new Rocket is the answer for you. Send the coupon *today!*

DEMAND THE BADGE OF DEPENDABILITY

MAIL THIS COUPON TODAY!

CONCRETE TRANSPORT MIXER CO.

4989 FYLER AVE. ST. LOUIS 9, MO.
FLanders 2-7888

Gentlemen: Please rush full information, prices and terms on the following: CM

- ☐ New Rocket Revolving Drum Truck Mixer
- ☐ Batching Equipment ☐ Water Meters
- ☐ Hi-Lo Stationary Drum Truck Mixer
- ☐ Materials Handling Equipment

Name_____

Firm_____

Address_____

City_____ State_____

Subdivision Contractor Pours 233 Cu. Yds. in 5 Hours!

with help of **BAUGHMAN**
MODEL TST-10
CEMENT BODY and STORAGE TANK

Here's how it works:

1. From concrete mfg. into Baughman TST-10 Bulk Cement Body.
2. Unloaded from Baughman Cement Body into Baughman horizontal screw conveyor which feeds Baughman vertical screw conveyor alongside storage tank.
3. Fed into either (a) Baughman Storage tank, (b) Batch mixer.
4. If cement is in storage tank, from storage into Baughman underbin conveyor to vertical screw into spout for batch mixer.

MOVE BULK CEMENT the EASY, MODERN WAY!

- Quickly loaded through weatherproof roof hatches.
- Twin auger discharge.
- Custom-built for truck or trailer.
- Powered by auxiliary engine, power take-off or fifth wheel.
- Patented air-cell construction prevents packing.
- Lengths from **9** to **35** ft.

WRITE for Bulletin A-348

BAUGHMAN

BAUGHMAN MANUFACTURING CO., INC.
130 ARCH ST. • JERSEYVILLE, ILLINOIS

ANOTHER SATISFIED USER PREFERS THE HYDRO-LIFT UNLOADER

Read what J. Kreider Kurtz, president of Kurtz Bros. Concrete, Inc., Ephrata, Pa., has to say about the G & H HYDRO-LIFT UNLOADER . . .

"Gentlemen:

"We have now had your Hydro-Lift Unloader in service for two (2) months. We consider this unloader the most practical on the market, and we most heartily recommend it.

"Due to the light weight of the machine, we have not lost any pay load thru the use of this unloader, and we have experienced far less complaints about broken corners. Every contractor, to whom this truck has hauled, has requested that we always use this truck on his jobs. The contractor on the job appreciates the ability to unload in basements or uneven terrain, and the ability to place blocks at convenient locations without lost time.

"Our driver has become proud of his rig, and takes great pride in being able to keep neat and please the customers on the job.

"We have found this unloader to benefit us economy-wise, since it does the work of about 1½ other trucks.

We are now able to use two trucks and drivers with unloaders in place of three unequipped trucks and drivers, thus realizing a financial saving as well as increasing customer good will.

"Very truly yours,
(Signed)
J. Kreider Kurtz,
President"

Write **G & H MACHINE COMPANY**

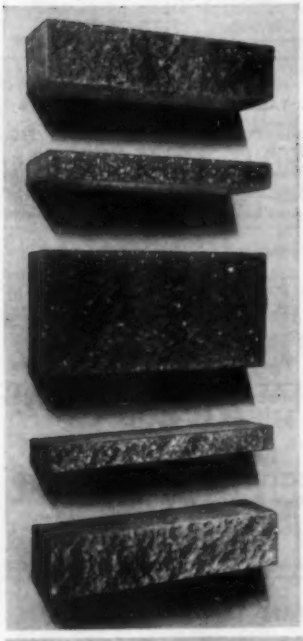
P.O. Box 38 **Columbia, Pa.**

BES-STONE *Split Block* MAKES the Difference

* Advances architectural design and beauty

* BOOSTS YOUR PROFITS!

TWO SIZES: 18" and 24"
Automatic operation — 960 Split Block per Hour



+ Add a BES-STONE BLOCK SPLITTER to your plant NOW

You'll find it full of profit-opportunity because the trend toward BES-STONE Split Block is strong! Architects, contractors, owners WANT this beautiful, modern, colorful "quarried stone" effect that is so ideal for all structures . . . commercial, institutional, residential. BES-STONE Block Splitter makes straight line cuts . . . no cull block. Automatic hydraulic operation . . . up to 960 Split Block per hour . . . safe, quiet . . . a big money maker!

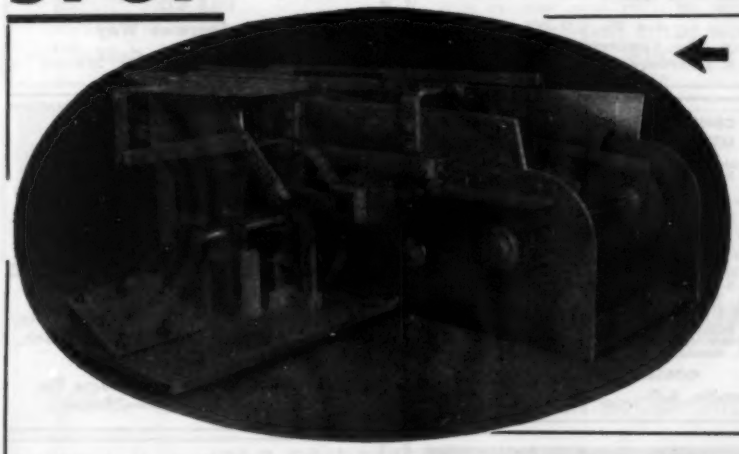
BES-STONE *the Split Block with Character*

Write for BES-STONE Bulletins 95A and 100

BESSER COMPANY • Complete Equipment for Concrete Block Plants • Alpena, Michigan, U. S. A.

A 8008-1/4-H

STOP the Shock that cracks the Block!



← OSWALT

Shock-Free Block Ejector removes the block as gently as if lifted by hand . . . reducing green cracking to a minimum and increasing net production to a maximum. It is an outstanding design for smoothness in operation as well as efficiency and durability. The Front End Pallet Feeder, an integral part of the unit, saves time and labor, eliminating the former complicated mechanism.

OSWALT Complete Service to Vibrapac operators includes:

(1) Shock-Free Block Ejector and Front End Pallet Feeder
(2) New Simplified Height and Density Control
(3) Improved Vibration and Machine Changes for Speed-up.

Installed under supervision of Oswalt service men. Operation tested and proven on job to insure guaranteed results.

WRITE TODAY FOR FULL INFORMATION

Write for name of Oswalt-serviced plant nearest you

OSWALT ENGINEERING SERVICE CORP.
1335 Circle Ave., Forest Park, Illinois
Phones: EStebrook 8-3666 · FOrest 6-3898

Concrete Manufacturer Classified Section

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Located in County Seat Town of central Minnesota. Prosperous farming and dairying community. Competition nil. Excellent expansion possibilities. Concrete and lightweight block — Drain Tile — Septic Tanks — Cess Pools — Lintels — Anchor Block — Reinforced Concrete Culvert Pipe and Sewer Pipe — Gravel Washing Plant with unlimited supply. Plant site consists of 2½ acres of land bordering on major trunk highway. Excellent equipment in A-1 condition. A money maker. Illness forces retirement.

Box No. CM-206, c/o
The Concrete Manufacturer
431 S. Dearborn St. Chicago 5, Ill.

STOP *that* WATER

With FORMULA NO. 640

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: Applies quickly — no mixing — no cleanup — no furring — no membranes. Write for technical data—free sample.

HAYNES PRODUCTS CO., OMAHA 3, NEBR.

FOR SALE
COMPLETE BLOCK PLANT

1—Stearns Model A Clipper Stripper
1—12 cu. ft. Mixer—Skip Hoist
46—Steel Drying Racks
2—Barrett Hand Lift Trucks
1—Erickson Power Lift Truck
1900—Plain Steel Pallets
500—Corner Pallets
200—Sash Pallets
2100—4x8x16 Steel Pallets

Owners—Retiring from Business.

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Furnished from prime domestic open hearth mild steel plate.

Guaranteed Quality
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WANTED: American #7 cinder grinder. Syntron or Gilson testing screen. Yoder or Forney compression tester.

EDGAR H. HALL
Banner, Kentucky

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EXCLUSIVE DISTRIBUTOR of fork lift and platform trucks will consider applications for purpose of securing representation in New England and northern New York on straight commission basis. Applicants of experience with lumber dealers and concrete industry preferred. Outline experience in first instance to P.O. Box 113, Woodbridge, NJ.

FOR SALE

1 #9 Joltcrete with 8" Mold Box
1 #7 Joltcrete with 4", 8" and 12" Mold Boxes
5700 4 x 16 Steel Pallets Code Name "Zonal"
7000 8 x 16 Steel Pallets Code Name "Dresden"
1900 12 x 16 Steel Pallets Code Name "Petunia"

All this equipment is operating now and for sale cheap.

ODUM SUPEROCK BLOCK COMPANY
Box 5326, Birmingham, Alabama

FOR SALE

1950 F-8 Ford Truck with Tandem. Also 5-yd. mixer.

Box No. CM-205
c/o The Concrete Manufacturer
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CONCRETE PIPE MOLDS FOR SALE
SIZES 12-INCH THROUGH 18-INCH

(a) 18-inch concrete pipe molds in 3-foot lengths with 3 bottom pallets and 1 top header for each mold. We have 30 of these molds, 5 of which are Quinn Standards.

(b) 15-inch concrete pipe molds in 3-foot lengths with 3 bottom pallets and 1 top header for each mold. We have 20 of these molds, 11 of which are Quinn Standard molds.

(c) 12-inch concrete pipe molds in 3-foot lengths with 2 bottom pallets and 1 top header for each mold. We have 26 of these molds, 8 of which are Quinn Standard molds.

This equipment is in good condition and will be sold very reasonably for a quick sale. Contact: A. C. Gossett.

GOSSETT PIPE COMPANY
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WANTED TO BUY
Brikcrete Machine
and
Dunbrik Machine

Including carts, pallets, mixers, for above, reply to:

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CONCRETE MANUFACTURER
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FOR SALE
SEPTIC TANK FORMS—F.H.A. APPROVED

1 Complete Form for making 1 piece, 750 Gal. Tank
1 Complete Form for making 1 piece, 500 Gal. Tank
1 Extra inside form for 1 piece, 500 Gal. Tank
3 Lid Forms — Tank Turner and Chains
1 1947 Dodge 1-1/3 Ton Truck with Power winch and overhead Manorail. Complete outfit for $1200.00

STOWERS CEMENT PRODUCTS
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MINERAL COLORS
for
BRICK MORTAR
STUCCO-PLASTER-CONCRETE
"Fine Because of Their Fineness"
Ask for samples and recommendations.
BLUE RIDGE TALC CO., INC.
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INCREASE* PROFITS *INCREASE

Production up, Quality up

MOULD-RITE

Fits All Block Machines

NO. HOLLYWOOD CONCRETE TILE CO.
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FOR SALE

Complete set of forms and equipment to manufacture Concrete Septic Tanks. Sizes 500-600-750-1000 gallon capacity. Priced to sell—Once in a Lifetime Opportunity. $3500.00. Can Arrange Financing.

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100—Telescopic Steel Centers, 10' to 16', in A-1 Condition, $45.00 each, F.O.B. El Paso.

The Atlas Building Products Co.
P.O. Box 601, El Paso, Texas

FOR SALE $4000.00

Model K 47 Hydro-Korpak block machine with 5 HP, 3 Phase, 60 Cy. motor, and attachments to make all standard 8" blocks. 25' Gyro-matic mixer completely equipped with 10 HP back geared motor, and hoist with 5 HP back geared motor including magnetic switch for automatic safety stop at top and bottom.
This equipment is in excellent condition and was used for experimental purposes only.

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COLOR YOUR CONCRETE WITH LANSCO CEMENT COLORS, available in 40 ATTRACTIVE shades. Suitable for all types of concrete products. Write for our new color card, copy of "Suggestions For Using Cement Colors", and for free samples and price list.

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Fork and platform power lift trucks, used and guaranteed factory rebuilts.

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¼x16½x18 @ 70c each.
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(for above pallets)
holds 72—8" blocks @ $35 each.
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Complete Brikcrete Plant Equipment. All equipment bought new, has not been operated for 3 years. Reason for selling—have other interest that requires all my time. Will accept best offer and load in cars. Plant can be inspected at any time.

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3 New 40 to 60 ft. Cement Elevators
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Cement Elevator — 32 feet high — with 12 foot screw conveyor, powered by gasoline motor.

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7¾ x 15¾ inch mold box
3¾ x 15¾ inch mold box—2 blocks at a time

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1—Stearns Clipper block machine, including 4" & 8" core boxes. In very good condition.
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Established 1885

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Several steel racks—60 block capacity.
A lot of pulleys, shafting and belting.

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PACKER-HEAD WINGS
Proved to last as long or longer — yet cost considerably less. Write for prices.
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You too can dispose of your surplus equipment at very small cost.

IDLE EQUIPMENT + P & Q = CASH

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PIT AND QUARRY CLASSIFIED SECTIONS
431 South Dearborn St. Chicago 5, Illinois

a rugged small truck

Model F-4R 4,000 lbs. capacity

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Erickson

For tricky ramps, rough or soft ground, cramped quarters—you will quickly become a booster for Erickson F-4R ease of handling, traction, balance, ruggedness. Comfortable seating space reduces operator fatigue. The F-4R is designed for more work per day—built for lower cost per year. Erickson quality is economy for you! Forks, mast and lift heights as ordered, twin tilt cylinders, 4 speeds forward, 4 speeds reverse. Side-shifter, scoop and other attachments available.

Send for Erickson Catalog on platform trucks to 7000 lbs. cap. and fork models 2000 to 20,000 lbs. cap.

- Short Wheelbase & Turning Radius
- Complete Operator Vision
- Large 10-Ply Pneumatics
- 12" Center Underclearance
- Amazing Ease of Handling

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St. Anthony Blvd. & University Avenue N.E.
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Erickson THE WORKHORSE OF LIFT TRUCKS

Get STEAM QUICK with "Kwik-Steam"
(IN 2 MINUTES)
for curing Blocks and Pipe
with the Littleford
"KWIK-STEAM" Vapor-Clarkson Generator

Modulating controls

fully automatic

steam where you want it

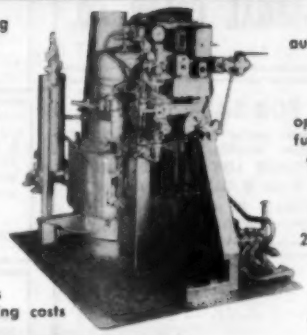
operates at full or half capacity

steam when you want it

sizes from 20 to 165 BHP

cuts manufacturing costs

speeds up curing cycle



You get steam in 2 minutes flat from a cold start with the Littleford "Kwik-Steam" Generators. And you save real money on concrete manufacturing costs, because the "Kwik-Steam" reduces labor costs 50% (no skilled labor required) and speeds up the curing cycle. There's a size for your plant. Send for descriptive bulletin.

Send for Bulletin EE-22

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Puts Money In The Bank for Any Fleet Owner

3½ to 6 YARD CAPACITY

Again Improved for More Payload on the Road . . . More Concrete in the Forms

- **EASIER, SIMPLER to handle on the road — on the job.**
- **THORO-MIX ACTION. Mixes, discharges all slumps.**
- **SIMPLEST DESIGN OF ALL. No maintenance or service problems.**
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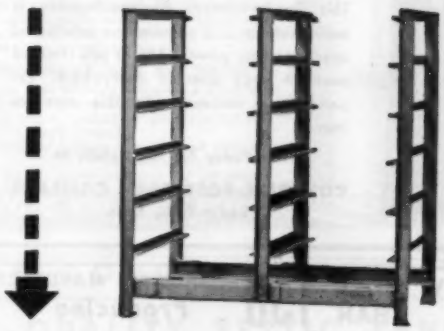
CHASE BLOCK RACKS, PLAIN STEEL PALLETS

Your best buy



Here's why **. . . Standard style or specially designed, Chase racks meet your requirements. They're shipped painted and knocked down—assembly is easy—no special tools or welding needed. Chase experience means low prices and years of dependable service. Check Chase prices.**

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SAVE FUEL • REDUCE CURING TIME CUT COSTS • UP PROFITS with *Standard* KILN DOORS!

WHERE AISLE SPACE IS LIMITED STANDARD sliding doors need no aisle space. The carrier-type door (shown) requires 15" minimum clearance above top of door opening. A vertical sliding door, counterweighted for easy opening, is also available.

WHERE HINGE-TYPE DOORS ARE PREFERRED Choose from two STANDARD hinge-type doors. The top-hinging door (shown) can be used when there's insufficient room at sides of door. The conventional side-hinging door has rugged hinges and positive-seal lock.

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- **Heavy Aluminum Sheets on Both Sides of Thick Vapor Proofed Insulation.**
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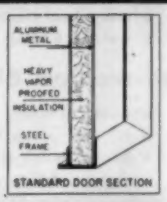
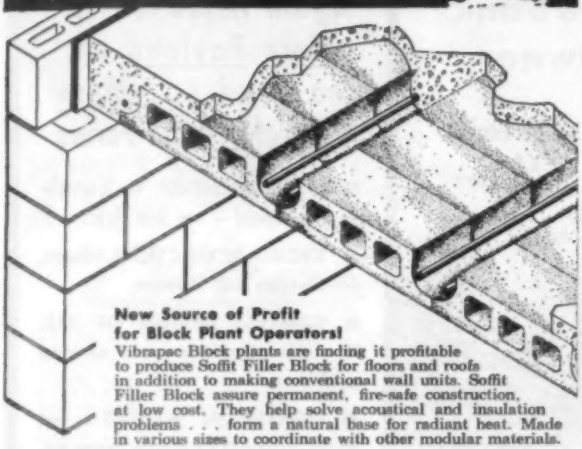


STANDARD DOOR SECTION

Get the Best — Send for Details Now
STANDARD DRY KILN COMPANY
P. O. BOX 5708 . . . . INDIANAPOLIS 21, IND.

Give them BOTH-

VIBRAPAC Block for Walls
SOFFIT Block for Floors



New Source of Profit for Block Plant Operators!
Vibrapac Block plants are finding it profitable to produce Soffit Filler Block for floors and roofs in addition to making conventional wall units. Soffit Filler Block assure permanent, fire-safe construction, at low cost. They help solve acoustical and insulation problems . . . form a natural base for radiant heat. Made in various sizes to coordinate with other modular materials.

VIBRAPACS are Versatile!
All types and sizes of block, as well as Soffit Floor Filler Block, are made on a Besser Vibrapac, using the same set of Plain Pallets. Fully automatic. No machine operator is required. Write for literature.

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ALPENA, MICHIGAN, U. S. A.
Complete Equipment for Concrete Block Plants

A 8168-¼

COLOR MAKES THE SPLIT BLOCK

Use Pure Strong Lightfast Synthetic Iron Oxide Colors

11 REDS—*from peach to burgundy*
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15 BROWNS—*from beige to chocolate*

plus

Black • Grays • Blues • Orange

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Two Distinct Types of Green

We invite requests for further information

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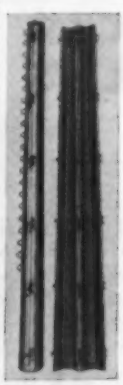
SEPTIC TANK MOLDS
for making
APPROVED SEPTIC TANKS are made to the most rigid specifications.

Build rectangular concrete septic tanks that will meet the approval of local health officers and sanitary engineers . . . build them quicker and at lower cost with NORWALK equipment.

Write for details.

THE NORWALK VAULT COMPANY
DEPT. CM NORWALK, OHIO



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This form produces this LARSEN "Lifetime" Concrete Post
STRONG • DURABLE • LIGHTWEIGHT
Made of Cold Rolled Sheet Steel

This low-investment business-booster is easily set up . . . requires no additional space, and no power. Makes pre-stressed posts in large demand everywhere. Expand your income with this sure-fire item!

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JOHNSON ELEVATOR CHAINS

- long-life carburized steel knuckles
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All-welded BUCKETS

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Send information on: ☐ buckets ☐ elevator chains
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STREET _____
CITY, STATE _____ J342REV. PO

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For Complete Information Write
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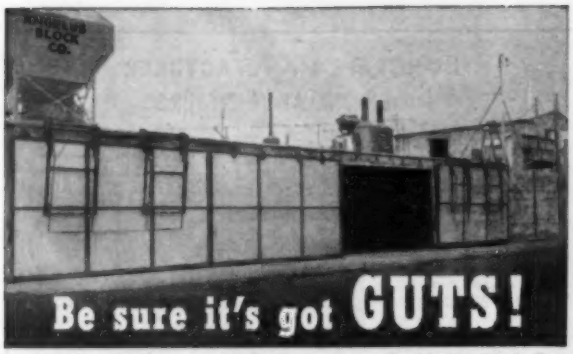
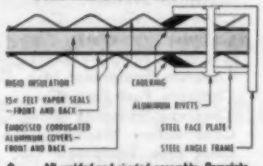


Be sure it's got GUTS!

Above: Universal Doors and Carriers in use at Angelus Block Co., Burbank, Calif., one of the West's oldest and largest block producers.

Kiln closure equipment is no place for tin-pan construction. Be sure the equipment *you* buy has the *guts* to give you efficient operation and long trouble-free service. Write, wire, or phone for detailed information.

PARTIAL DOOR SECTION

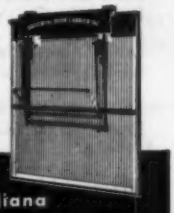


All welded and riveted assembly. Complete internal drainage system for condensation.

Universal

KILN DOORS and DOOR CARRIERS

50th Anniversary 1904-1954



UNIVERSAL DOOR CARRIER, INC.
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"SPECIALISTS IN KILN CLOSURE EQUIPMENT—SINCE 1904"

"Cleaned with a whisk broom, putty knife and . . .

EDI-COTE 103 in half the time!"

says owner* of this 17 year old mixer that looks like new.

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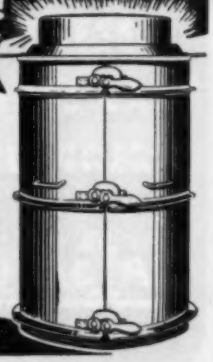

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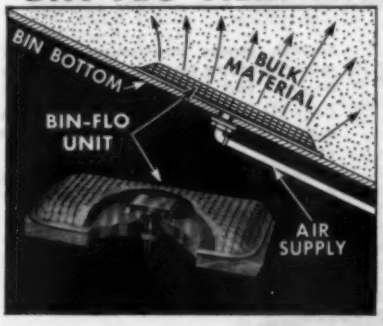

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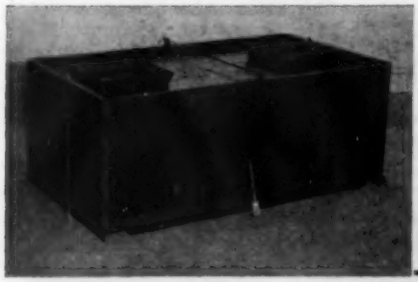

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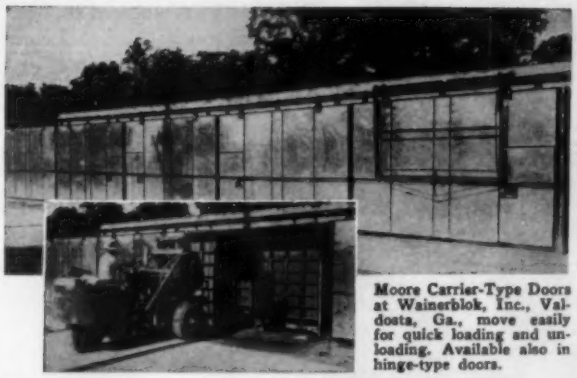

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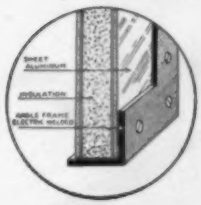

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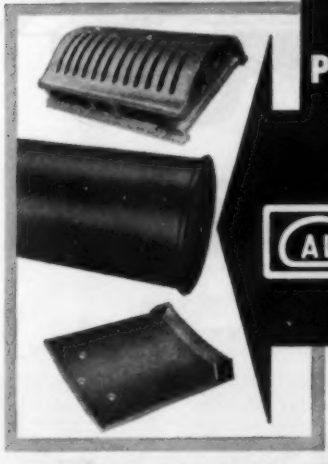

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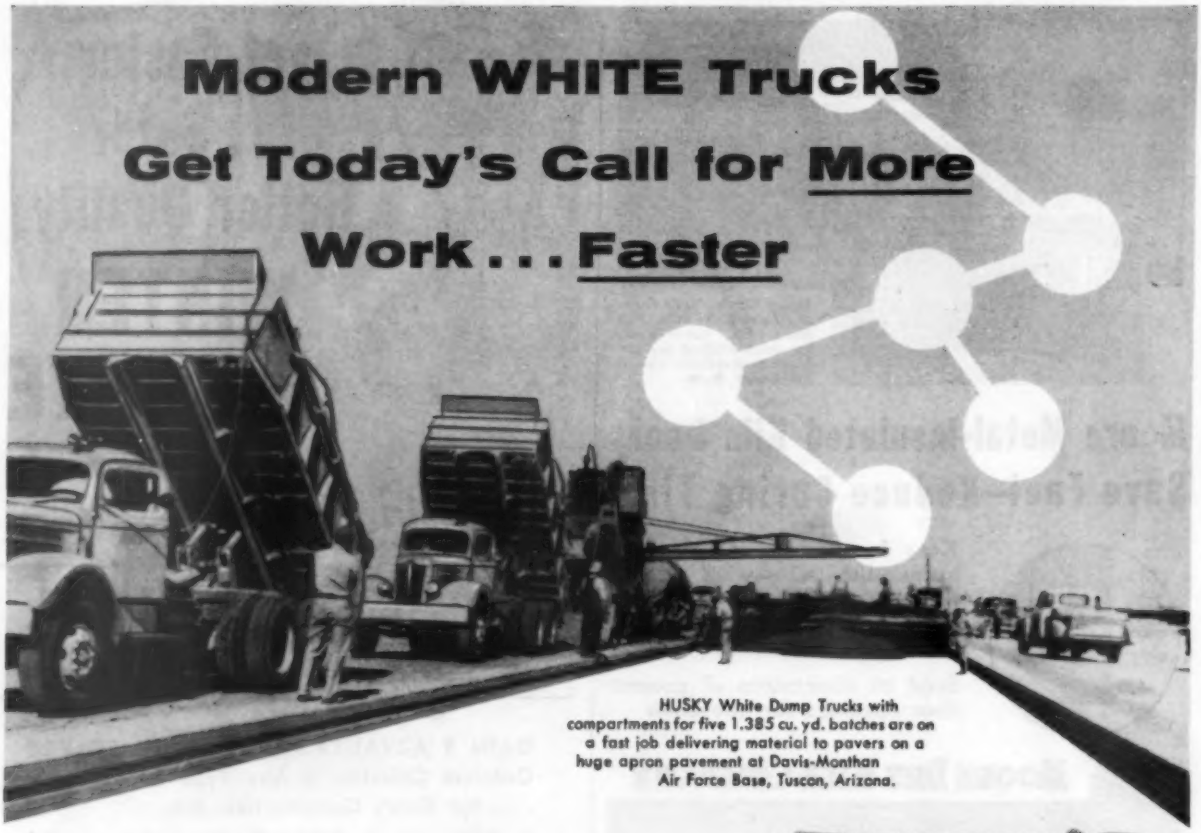

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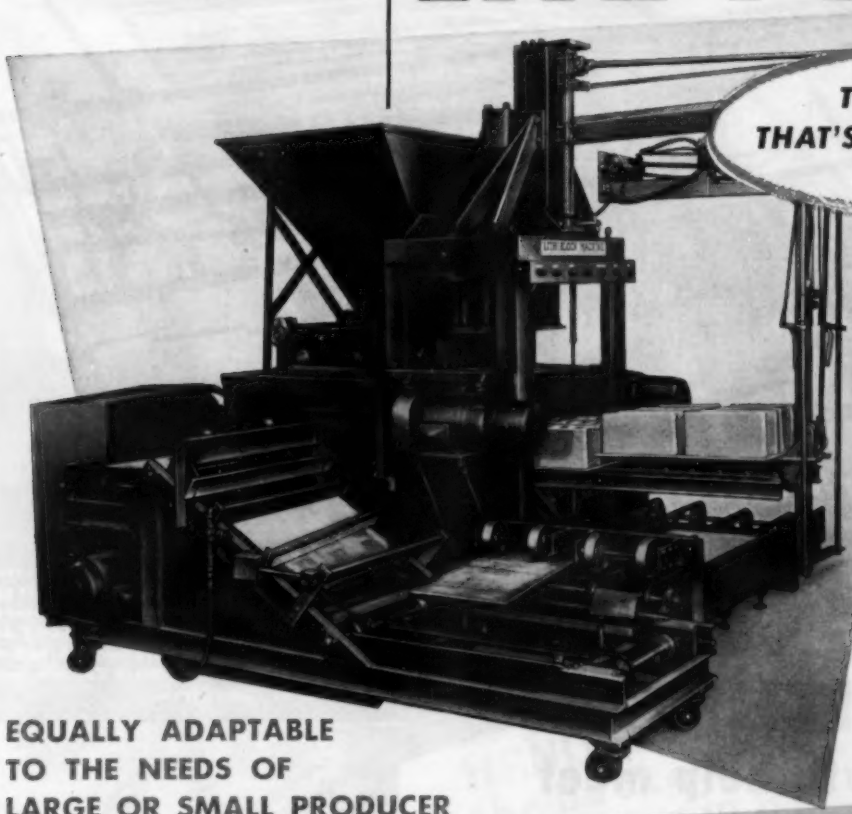

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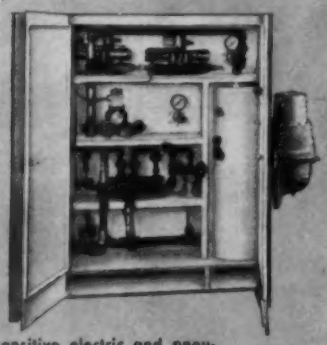

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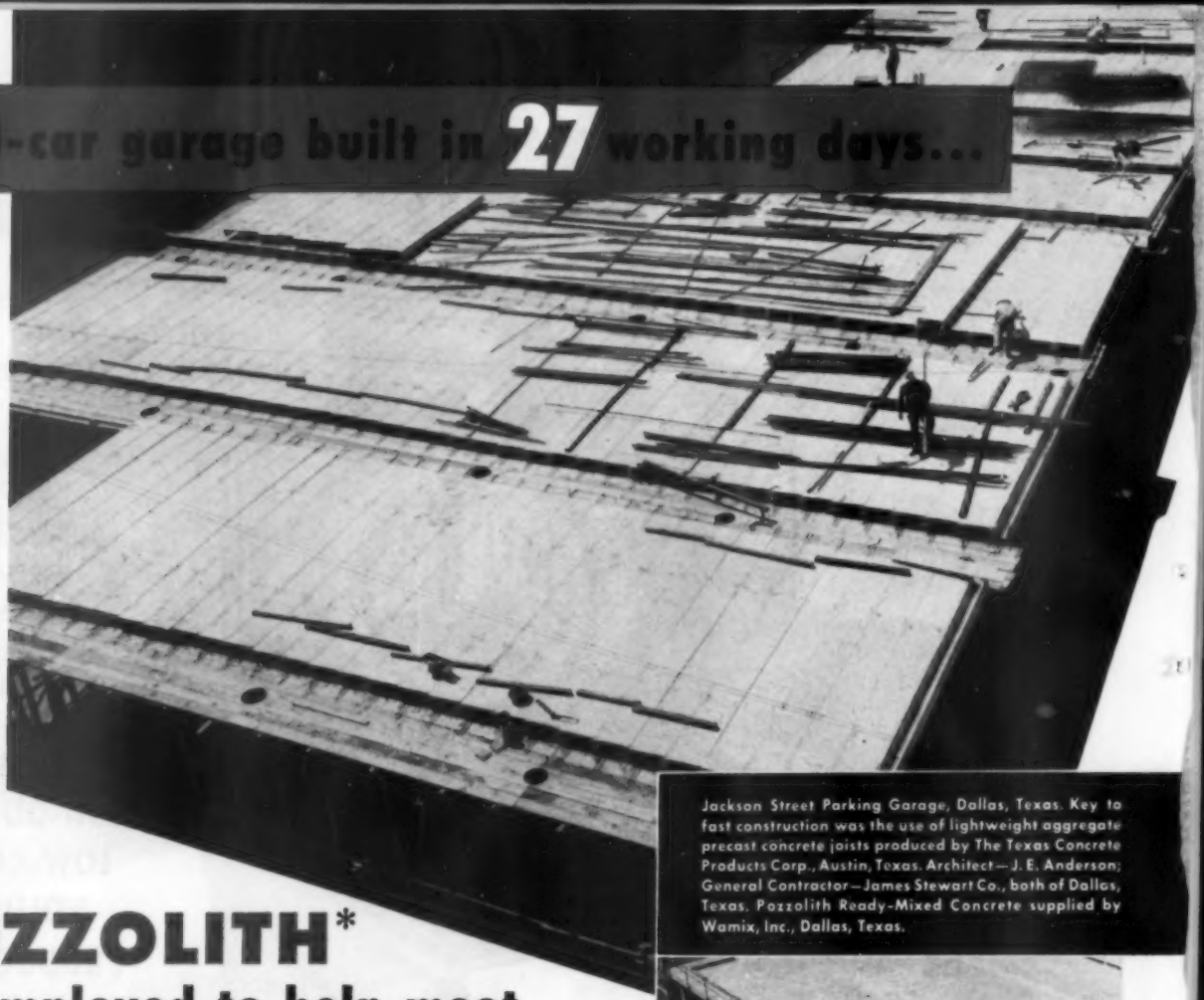

Jackson Street Parking Garage, Dallas, Texas. Key to fast construction was the use of lightweight aggregate precast concrete joists produced by The Texas Concrete Products Corp., Austin, Texas. Architect—J. E. Anderson; General Contractor—James Stewart Co., both of Dallas, Texas. Pozzolith Ready-Mixed Concrete supplied by Wamix, Inc., Dallas, Texas.

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employed to help meet concrete requirements

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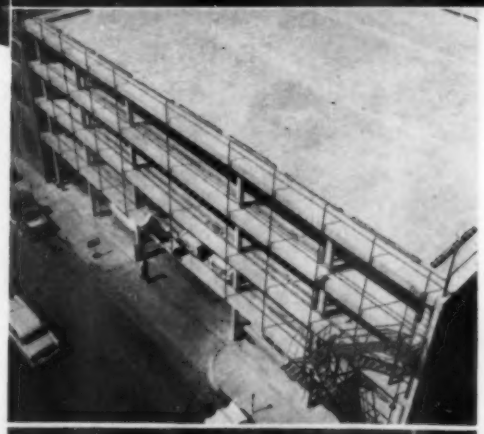

*POZZOLITH . . . reduces unit water content up to 15% for a given placeability and fully complies with the water-cement ratio law. Pozzolith is produced in three standard formulations—High Early Pozzolith, Normal Pozzolith and Low Heat Pozzolith—to give the results required under varying job conditions.

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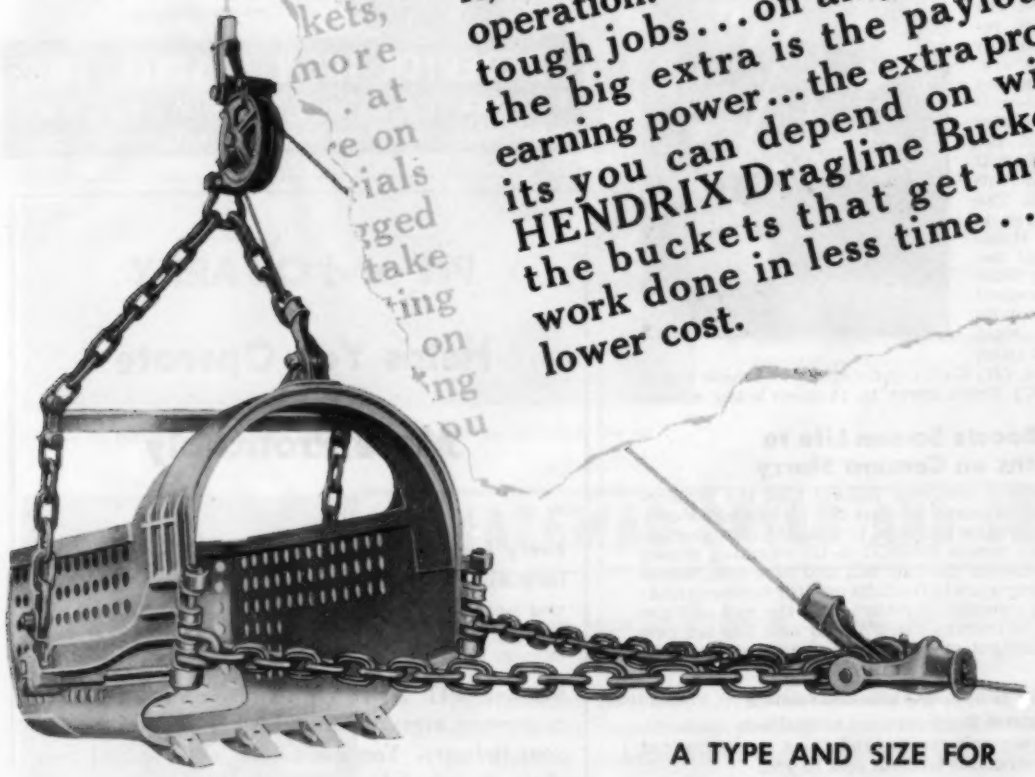

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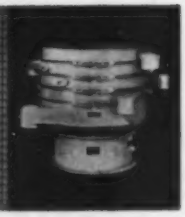

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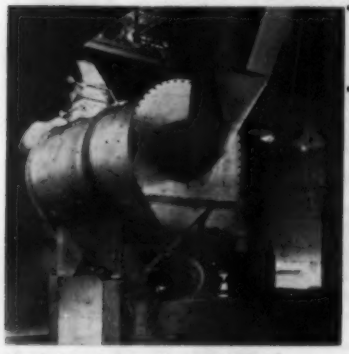

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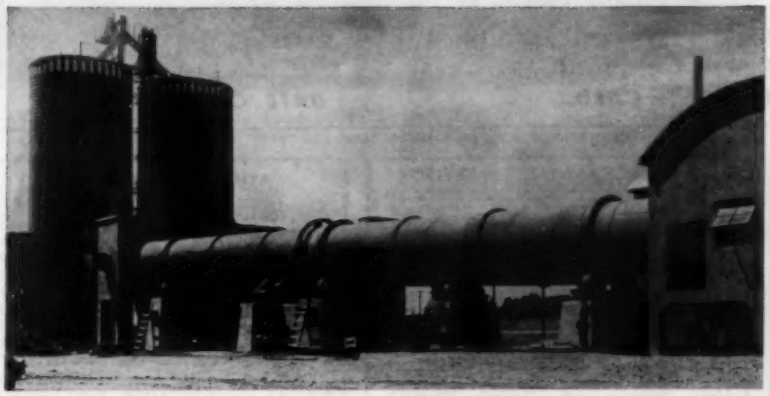


Here are two Kilns 8' diameter x 125' long at the Buildex, Inc. plant, Ottawa, Kansas, used for making Light Weight Aggregate. They also have two Rotary Coolers 5' x 6" diameter x 50' long, that work with the Kilns.

The WEBB Corp., pioneering heavy industrial equipment since 1881, is strategically located; well staffed with consulting engineers, skilled mechanics and modern equipment.

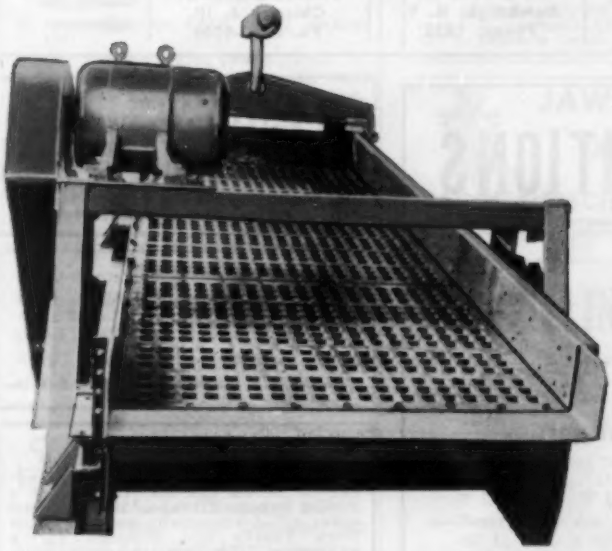
- Crushers
- Conveyors
- Scales
- Screens
- Hoppers
- Brick Yard Equipment
- Semi-Drop Bottom Trailers

THE **WEBB** CORP., WEBB CITY, MISSOURI, U.S.A.

Write for complete information

We are manufacturers of Plate Fabricating Machinery • Truck and Trailer Wheels • Mining Machinery • Railroad, Motor Truck and Industrial Scales • Products for Coal, Mining, Lead and Zinc • Smelters • Brick and Cement Plants • Rock Quarries

Takes Rough Treatment In Its Stride



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Sales Offices in Principal Cities

Perforated Metal • Perforated Metal Screens • Wedge-Slot Screens • Architectural Grilles • Mitco Open Steel Flooring • Shur-Site Treads • Armorgrids

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SALES — PRODUCT DESIGN

Major heavy machinery manufacturer, located Midwest, has excellent opportunities for mechanical design engineers experienced in research and development and in new product design of machinery used in mining, crushing, cement and basic processing industries. Also sales engineers who have experience in this industry or in sales of heavy machinery. Exceptionally fine working conditions and opportunity for future. Write, stating education, experience, present employment, personal data and salary expected. Replies confidential.

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Well known national cement manufacturing company has opening in Engineering Dept. for Assistant General Engineer. Cement plant experience is required and must be familiar with design, construction, and cost estimating. In reply please state age, education, experience and salary requirements.

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FOR LONG ESTABLISHED AMERICAN COMPANY IN MEDITERRANEAN. EXCELLENT LIVING CONDITIONS AND CLIMATE. FURNISHED HOUSING PROVIDED. MUST BE COMPETENT SUPERVISOR IN GENERAL MINE MECHANICAL WORK, BLACKSMITHING, WELDING, UPKEEP OF METAL MINING EQUIPMENT SUCH AS AIR DRILLS, STEEL TREATMENT AND SHARPENING, CAR LOADERS, HAULAGE, HOISTING, SLUSHERS, FANS, PUMPS, DIESEL AND STORAGE BATTERY LOCOMOTIVE TRAMMING, DIESEL COMPRESSORS, SURFACE AND UNDERGROUND ELECTRICAL INSTALLATIONS, SAW MILL, ETC. THREE-YEAR CONTRACT. SCHOOLS TO 14 YEARS. MEDICAL SERVICE. SALARY OPEN. REQUIRE WITH FIRST REPLY COMPLETE RECORD EDUCATION, EXPERIENCE, REFERENCES, PHOTOGRAPH (OPTIONAL), AGE, MARITAL STATUS.

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NEEDED FOR SINGLE-PLANT CEMENT COMPANY LOCATED IN NORTHEASTERN U. S. PREFER APPLICANTS UNDER 40 YEARS OF AGE. QUALIFICATIONS SHOULD BE SUFFICIENT TO ASSUME POSITION OF CHIEF CHEMIST WITHIN A REASONABLE TIME. REPLIES, WHICH WILL BE KEPT CONFIDENTIAL, SHOULD INCLUDE DETAILS ON EXPERIENCE, TRAINING, AGE AND OTHER PERTINENT DATA. OUR EMPLOYEES KNOW OF THIS ADVERTISEMENT.

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POSITION WANTED

Sales Engineer—with manufacturer or distributor of quarry and sand and gravel plant equipment. Wide experience with well known manufacturer. Presently engaged in factory sales and service. 30 years old, college training.

Box No. PQ-208, c/o Pit and Quarry
431 S. Dearborn St. Chicago 5, Ill.

Quarries
Crushing Plants
Cement Plants
Storage Methods
Operating Costs

E. Lee Heidenreich, Jr.
Consulting Engineer

75 Second St.
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Phone: 1828

9 South Clinton St.
Chicago 6, Ill.
Ph. FR 2-4186

Operation
Plant Layout
Design
Construction
Appraisals

YEAR 'ROUND POSITIONS

EXPERIENCED:

- Asphalt Plant Superintendents
- Crushed Stone and Slag Superintendents
- Construction Cost Accountants
- Estimating Engineers
- Asphalt Road Superintendents

Write giving age, past experience and expected salary

OHIO ROAD IMPROVEMENT CO.

30 East Broad St. Columbus, Ohio

WANTED
GRAVEL PLANT SUPERINTENDENT

Must have experience in producing screened aggregates. State qualifications and salary expected. Midwestern location.

Box PQ-202, c/o Pit & Quarry Publications
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A fortune for you and your descendants! Develop this high-grade, hard-granite — Quarry in central Wisconsin — Available on Long Term Lease.

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BLOCK PLANT SUPERINTENDENT WANTED

We need a block plant superintendent to handle the maintenance of a Besser Super - Vibrapac Machine, and other allied equipment, such as Clark Fork Trucks and Campion curing equipment. Our total annual production is about 1,500,000 blocks. We want a man who has block plant experience, is honest and believes in a quality product, and can operate a plant as efficiently as it should be. If you qualify, we guarantee that you will be satisfied with the contract we offer.

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Rent or Buy Guaranteed "Sized-for-the-Job"

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and Insure your Profit Margins

Why be handicapped by inadequate equipment? With present labor costs, speed is essential. Our thorough unit rebuilding guarantees you of dependable, efficient equipment.

AIR COMPRESSORS

500 cu. ft. Ing. Rand Mdl. K500, 100#, 6 cyl. Wauk-Hesselman Diesel, 4 pneu. tires hydraulic clutch.

360 cu. ft. Ing. Rand, direct connected 75 HP 3/60/440 motor, 20x60" air receiver, with starting compensator.

CAR PULLERS

Two Mead Morrison drum type pullers, 7½ HP and 15 HP, 3/60/220, 4200# to 15,000# linepulls.

CRANE, LOCOMOTIVE

30 ton Mdl. F OHIO #3266, 50' boom, oil fired, Nat'l. Bd. 200# boiler, beautiful shape; good buy.

DERRICKS

30 ton Wiley Mdl. F Stiffleg, 60-80 or 100' boom; rated with 60' boom 30 ton @ 38' or 15 ton @ 57'.

20 ton American Terry Steel Erectors Guy Derrick, 110' mast, 100' boom.

DRAGSCRAPER HOISTS

American 2-speed Band Friction Dragscraper Hoists, with 125 HP 3/60/220 slipring motors, drum controllers, grids, rated 6 ton @ 250 FPM for digging and 2½ ton @ 600 FPM for hauling.

HOISTS, STEAM

11x12 3/drum American, steel gears, 2 clutch winch heads, wt. approx. 13 ton, rated 15,000# single line.

8½x10 2/drum Lambert, drums 14x25x7".

9x10 2/drum Lambert, drums 14x24x 7½".

10½x12 2/drum Lambert; one drum 24x34x8", with line pull 9,000#; other drum 16x24x11" with line pull 13,000#.

PUMPS, ELECTRIC

12" Dayton Dowd, vertical, 50 HP, 3/60/220/440, 6,000 GPM @ 19'.

3" Worthington 2 stage centrifugal, 25 HP, 440/3/60, cap. 200 GPM @ 127' head.

THIS MONTH'S SPECIALS

CRANES, CRAWLER

1½ yd. P&H 655-A Diesel Crane or Dragline, 75' boom, 20' jib, hi gantry, Cat. D-13000 eng.

1½ yd. Mdl. 77 Lorain #9163, D-13000 Cat. Diesel eng., 45-85' boom, 20' jib, wt. 40 ton.

Mdl. 501 Koehring #1071, 60-70-80' boom, 10' jib, Mdl. K Wisc. gas eng., 20 ton @ 12'. Wt. 97,200#.

¾ Yd. Mdl. 304 Koehring #C5934, 35' to 50' crane boom with jib and backhoe. Wt. 20 ton.

Mdl. 255A P&H #8243, 30-40' boom, Chrysler 8 cyl. gas eng., cap. 16,900# @ 12'.

Partial list — if what you need isn't listed, please contact our nearest plant.

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Box P-608
Sub. of Phila.
MAdison 6-2200

CHICAGO 12, ILL.
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EQUIPMENT CORPORATION OF AMERICA

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80 TON GE DIESEL-ELEC. LOCO. NEW 1947.
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30 YD. WESTERN & KOPPEL AIR DUMP CARS.
25 TON AMERICAN DIESEL LOCO. CRANE. 1941.
1½ YD. P&H 655 DIESEL CRANE. 1952.
3 YD. LIMA 1201 DIESEL DRAGLINE. 1947.
7 YD. PAGE 621S DIESEL WALKER DRAGLINE.
100 HP AMERICAN 3 DRUM ELEC. HOIST & SWINGER.
4 ft. SYMONS CONE CRUSHER. NEW.

MISSISSIPPI VALLEY EQUIPMENT CO.
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WANTED
ASSISTANT TO SALES MANAGER

Must have experience in rock crushers and knowledge of distributor procedures. Excellent opportunity—Midwestern location.

Box R-160, c/o PIT AND QUARRY PUBLICATIONS
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Sales $250,000 year, Ready-Mix Concrete, same owner 58 years, present sales $20,000 month, fully equipped yard and new batching plant, office, warehouse, garage, etc., 11,000 ft. bldg. space, R.R. siding, 8 trucks, large building and new industrial city, price including property, $250,000.

APPLE CO. BROKERS CLEVELAND, O.

WANTED
Used Sand Washing Equipment
A. SCHWALM
R.F.D. #1 Chicago Heights, Ill.
SK. 4-4575

CARPULLERS AND LOADERS

1— 5,000# Jeffrey Carspotter AC
1— 6,000# Brownie Carspotter AC
1— 5,000# Link-Belt Carspotter AC
1—20,000# Amer. Hoist Carspotter AC
1—20,000# LB Endless Puller

CRUSHERS AND MISC.

1—36x36 Jeffrey Sgl Roll
1—12x16 Eagle Dbl Roll
1—18x20 Eagle Dbl Roll
1—¾ yd. complete Northwest shovel front with bucket

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TELEPHONE BRIARGATE 4-8607

JAW CRUSHERS — 6" x 3" to 60" x 48"

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FARREL-BACON JAW CRUSHERS
it will pay you to consult

BACON-PIETSCH Co., Inc.
Engineers & Manufacturers Send for Catalogue
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Machine Shop Facilities
FEEDERS
Conveyors, Screens, etc.

SELLING FROM CLOSED PLANTS

1—Penna. Ring-type Granulator, Trojan K3-24; 18" x 36" hopper opening, 40 HP motor.
2—Jeffrey 24" x 18" Hammer Mills.
3—Rotoclone size 20 Exhauster and Dust Collector, type W, 40 HP.
6—Rotary Kilns: 10'6" D x 105' L; 7' D x 60' L; 5' D x 30' L.
4—Rotary Hot Air Dryers: 4'6" D x 40' L, 4' D x 40' L; 4' D x 25' L, 4' D x 24' L.
1—Hardinge Conical Steel Ball Mill 8' D x 60" L.
2—Fuller Kinyon Pumps 6" type E, 25 HP.
1—Jeffrey Pivoted Bucket Carrier, 185 lin. ft., 16" x 18" pivoted buckets.
1—Link Belt Ship Hoist, 48 TPH.
Large lot of:
Trough Belt Conveyors
Pan or Apron Conveyors
Bucket Elevators
Screw Conveyors
Drag Conveyors
Pumps & Motors
Crushers & Pulverizers

PERRY EQUIPMENT CORP.
1414 N. 6th Street Philadelphia 22, Pa.
Phone STevenson 4-7210

PIT & QUARRY EQUIPMENT

S-2666 (B)—Barber-Greene Mdl. 82-A Bucket Loader on crawlers with spiral feed. Powered by Buda 6 cylinder gasoline engine.
Sale Price FOB Louisville, Ky.....$1,950.00

RS-2731 (B)—Ingersoll-Rand Mdl. K-500 2-stage Portable Air Compressor on steel wheels, powered by Waukesha 4½ x 6½ Diesel engine. Good condition.
Sale Price FOB Louisville, Ky.....$3,500.00

RS-2627 (B)—Cleveland Wagon Drill, drifter mounted on 2 pneumatic tired wheels with 3d wheel caster. Good condition.
Sale Price FOB Louisville, Ky.....$950.00

RS-2616 (A)—Hough Mdl. HMD Payloader with 1¼ cu. yd. 84" wide square nose hydraulically controlled bucket installed. Powered by Hercules DJXH 6 cylinder Diesel engine.
Sale Price FOB Louisville, Ky.....$8,000.00

RS-545 (B)—Hough Mdl. HMD Payloader equipped with 1½ cu. yd. square nose bucket. Powered by Hercules Diesel Mdl. DJXH 6 cylinder Diesel engine.
Sales Price FOB Evansville, Ind.....$7,500.00

RS-2656 (B)—Hough Mdl. HY Payloader with 1¼ cu. yd. Hydraulically Bucket powered by Waukesha 6 cylinder gasoline engine.
Sale Price FOB Louisville, Ky.....$4,500.00

S-461 (B)—Lorain Mdl. TL-20 ½ cu. yd. capacity Backhoe on crawlers, fully enclosed cab, angle iron grousers with extra counterweights, powered by Caterpillar Mdl. 315 Diesel engine.
Sale Price FOB Evansville, Ind.....$5,500.00

S-555 (C)—Insley Model K-12 ½ cu. yd. Crane with 45 ft. boom, equipped for clamshell operations. Powered by Chrysler gas engine. Electrically started and mounted on crawler tracks 18" wide. Engine completely rebuilt.
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RS-2537 (A)—Bucyrus-Erie Mdl. 15-B ½ cu. yd. Clamshell Excavator on crawlers, fully enclosed cab with 30' boom and counterweights. Powered by International UD-350 Diesel engine.
Sale Price FOB Louisville, Ky.....$14,900.00

RS-2538 (A)—Bucyrus-Erie Mdl. 15-B ½ cu. yd. Combination Clamshell, Excavator and Lifting Crane w/extra counterweight. Fully enclosed steel cab, crawler mounted. Powered by International UD-350 Diesel engine, complete with electric starting. Used 90 days.
Sale Price FOB Louisville, Ky.....$15,100.00

RS-496 (A)—Bucyrus-Erie Mdl. 15-B ½ cu. yd. Dragline on crawlers with extra counterweights, 35' boom, fairleads, powered by International UD-350 Diesel engine.
Sale Price FOB Evansville, Ind.....$15,390.00

S-560 (B)—Buckeye Mdl. 70 Excavator w/35' boom and fairleads, ⅝ yd. P.M. Drag Bucket; ¾ yd. shovel front and powered by GM #371 Diesel engine w/torque converter.
Sale Price FOB Evansville, Ind.....$6,500.00

S-444 (C)—P & H Model 255-A ¾ cu. yd. Shovel on crawlers, fully enclosed cab, electric starting, powered by Waukesha Mdl. MZA gasoline engine.
Sale Price FOB Evansville, Ind.....$6,950.00

RS-2338 (C)—Lima Mdl. 34 Paymaster ¾ cu. yd. Drag Shovel on crawlers, enclosed cab, electric starting, wide pipe line mounting. Powered by GMC Mdl. 4-71 Diesel engine.
Sale Price FOB Louisville, Ky.....$8,000.00

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SINCE 1908

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Brook & Warnock Sts., Louisville, Ky.

Phone CAlhoun 4741 **Louisville, Ky.**

Phone 3-4491 **Evansville, Ind.**

FOR SALE BY OWNER

1—#8 Browning Locomotive Steam Crane, 50' boom.
2—Trucks, Autocar Diesel, Mdl. DC-20064-SN, tandem drive, 17 yd. rock dump bed, 200 H.P.
1—Elevator, Stephens Adamson, 24" x 36" Buckets, Steel Chain, 122' centers with drive, 200 T.P.H.
1—Shovel, Lorain Mdl. L-75-B, 1¼ yd. dipper, diesel power.
1—Screen 3' x 8' single deck, Tyler Niagara Type 300.
2—Screens 4' x 6' single deck, Allis Chalmers Utah Type.
22—Pumps, Bingham, Slurry, Sizes 2" and 4" rubber lined.
6—Pumps, Wilfley Slurry, Sizes 2", 3" and 5", Mdls. "C" and "K".
2—Blowers, Sutorbilt, 2000 C.F.M.
14—Flotation Cell Banks, "Morse-Weinig" type, cell size 42 x 42 x 48".
2—Coolers 5' x 45' Stearns Rogers.
2—Hydroseparators 60" x 45' Wemco.
3—Filters, Dorr Co., Drum Type, Sizes 10' x 12' and 14' x 18'.

for further information contact

J. H. Clements in care of BASIC REFRACTORIES, INC. Maple Grove, Ohio

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WANTED TO LEASE

The Ivy River Sand Co., Marshall, N.C. To some reliable Co. Railroad siding nearby.
For information call or write

KNOX BRIGMAN
Marshall, N. C.

FOR SALE

30 ton STIFF LEG DERRICK

Complete with 2 drum tandem hoist, independent swinger and 315 CFM compressor driven by 75 HP electric motor.
Location:
Garrison Dam, Riverdale, North Dakota

500 CFM Ingersoll Rand Compressor

Portable on rubber tires, powered by Waukesha-Hesselman diesel driven engine, with mounted air receiver and additional 4' x 12' air receiver. Recently reconditioned.
Location:
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Palo Alto, California

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30 HP 200#—200 HP 150# E. City Boilers
30-40-80-175-250 & 330 HP E. City Boilers
75-100-125 HP Loco. Type—Skid Mounted
8x36" Jaw Crusher—Type R-222 Crusher
10'x48" Ball Mill with 400 HP Motor
360 HP F-M 6 cyl. Full Diesel Engine
20' Portable Kewanee Conveyor—like new
18-24-30-36-48" Belt Conveying Equip.

H. & P., 6719 Etzel, St. Louis 14, Mo.

DEPENDABLE USED MACHINES

Special—Cedar Rapids 30 x 18 double roll crusher, rebuilt in our shop.

16x16 roll crusher	Pioneer 18V port. gravel plant	Northwest truck crane
Mesabi 5x12 screen	Koehring 1¼ yd. crane; Diesel	Byers ½ yd. shovel
Simplicity 2x6 screen	Link Belt ⅝ yd. crane; Diesel	Insley ½ yd. dragline
40' bucket elevator	Ford tractor with Wagner loader	Bay City ⅝ yd. dragline
Willard 3 yd. mixer	45 ton, 3-comp., port. steel bin	3000# front bail

These machines reconditioned in our newly-built daylight plant. Come see them!

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WEMCO SINK FLOAT MILL

1 WEMCO SIZE 1 WKE (HMS) MOBILE SEMI PORTABLE CATALOG CAP. 5 to 25 TPH WITH 5 FT. CONE SEPARATOR, CONVEYOR, ELEVATOR & SCREEN. LOCATED MIDWEST.

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FOR SALE

Several 2000, 3000, 4000, 5000, 6500 gallon water and asphalt tanks. Single and tandem axle. Asphalt tanks have steam coils or fire tubes and fully insulated. Real buy, tanks from:
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Also Trucks, Twin Screw & Single Axle Diesels: $1750.00 to $3750.00

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SAND & GRAVEL CO., C. Wyo. Unlimited supply. Good profits. Good potential for right buyer. Low price. Terms. #21337-A, FORD, 6425 Hollywood Bl., Los Angeles 28, Cal.

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THE BROADCAST SECTION
of PIT AND QUARRY

FOR SALE

One complete Sauerman 1 yd. heavy duty slackline excavator. Complete with cables, 2 drum elec. hoist, etc. Like new condition—Timken Bearing Carriage for Bucket. Priced to sell.
One 4" Dredge Pump compl. w/motor, drives, primer pump, etc. 200 ft. 4" hvy. duty dredge suction or discharge hose with nipples, unions. Priced to sell.

MODESTO SAND & GRAVEL CO., INC.
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QUARRYMASTER AND JOY ROTARY DRILLS

QuarryMaster with two 500 ft. compressors, also 58BH Joy Champions—Diesel or Electric—Bargains.

Frank Swabb Equipment Co., Inc.
313 Hazleton Nat'l Bank Bldg.
Hazleton, Pa. **GLadstone 5-3658**

CATERPILLAR

D-8800 Diesel Power Unit. 462 hours since complete overhaul. Clean as a whistle. Priced @ $3,000.

OSGOOD "200"

½ yd. Trench Hoe, gas power. We have just reconditioned this machine in our shop. Has Insley Hoe attachment. Available for rental, rental-purchase, or for sale.

SARGENT "38"

⅜ yd. Trench Hoe, mounted on GMC 6x6 Truck. Machine used four months on rental. Will rent, sell, or trade.

UNIT "514"

½ yd. Trench Hoe, gas power. Available for rental, rental-purchase, or sale.

BARBER-GREENE "522"

Rubber-tired Bucket Loader, 1951 model. Priced right @ $1,750.

EIGHMY EQUIPMENT COMPANY
120 S. Pierpont Phone 4-6706
ROCKFORD, ILLINOIS

Sand Equipment for Sale

1—4' x 8' Heavy Duty Bonded Vibrating Screen
1—3' x 15' Cedar Rapids Sand Drag
1—18" Belt Conveyor 50' Long
1—Whirlcone Separator
2—Sand Pumps 3" & 4"

KREIDLER SAND & GRAVEL
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FOR SALE
EUCLID REAR DUMP TRUCKS

model 1055 P & H shovel 3½ yd.
model 1600 P & H shovel 6 yd.
model 54-B BUCYRUS-ERIE shovel 2½ yd.
model 38-B BUCYRUS-ERIE shovel 1½ yd.
model 120-B BUCYRUS-ERIE shovel 5 yd.
model 170-B BUCYRUS-ERIE shovel 6 yd.
model 5-W BUCYRUS-ERIE dragline 6 yd.
model 4500 MANITOWOC dragline 5 yd. & shovel
model 4161 MARION shovel & drag 5 yd.
model 7400 MARION dragline 9 yd.
model 80-D NORTHWEST shovel 2½ yd.
model 6 NORTHWEST shovel 1½ yd.

WILLIAM LUBRECHT, III
Construction Equipment
311 W. Diamond Ave., Hazleton, Pa.
Phone Gladstone 5-4041

WANTED

Good used crushing and washing gravel plant, 100 to 300 ton per hour, also 1 crane boom for one yard Osgood Conqueror, serial No. 2282.

RUPP CONSTRUCTION CO.
Marshallville, Ohio

FOR SALE

Model 720 Osgood 1¼ yard Shovel. New December 1951. Very good condition; many spare parts.

QUALITY LIMESTONE PRODUCTS, INC.
Sussex, Wisconsin

— PRICED FOR QUICK SALE —
USED EQUIPMENT
IN GOOD CONDITION

1 Allis Chalmers 7½ K Gyratory Crusher with numerous spare parts $3500 F.O.B.
1 Allis Chalmers Areo-Vibe Vibrating Screen, 2 Deck 4' x 8' $500.00 F.O.B.
1 Robins Vibrex Vibrating Screen, 2 Deck 4' x 8' $500.00 F.O.B.
1 Robins Gyrex Vibrating Screen, 2 Deck 4' x 7'6" $500.00 F.O.B.
1 Kennedy Vibrating Screen, 3 Deck 3' x 6' $500.00 F.O.B.

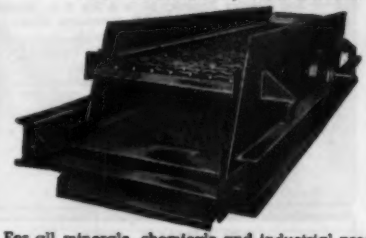
CRUSHED ROCK PRODUCTS INC.
MAXON ROAD
SCHENECTADY 1, NEW YORK

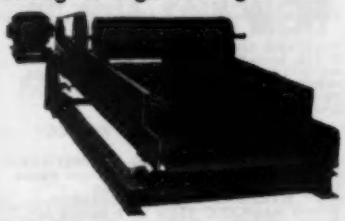
BONDED EQUIPMENT BARGAINS

WRITE, WIRE OR PHONE — IMMEDIATE SHIPMENT FROM STOCK

BONDED HEAVY DUTY VIBRATING SCREENS

"For Continuous, Economical Screening of High Tonnages"





For all minerals, chemicals and industrial products. To size, grade, clean and separate solids from liquids. Heavy duty models are 4-bearing, positive throw eccentric shaft type, 3'x8' to 5'x14', 1 to 5 decks, other models have eccentric weight mechanism, spring mounted; 1 to 3 decks; from 2'x4' to 3'x8'. All models low priced, with minimum maintenance and power consumption.

Heavy Duty prices from.....$1095.00 **General Purpose** prices from.....$395.00

NEW TROUGHING IDLER CONVEYOR BARGAINS

Complete Ready-Fab sections quickly and easily joined together on the job. We take our loss on our stock of short length belting. You can save as much as 50% on the BONDED CONVEYOR SPECIALS listed, with conveyor belting in two pieces. Conveyors are equipped with 5" roll diam. idlers and return rolls, 20" diam. head pulley and 16" diam. tail pulley mounted on 2¼" or 2-7/16" diam. shaft. Belt is new 4-ply, 28 oz. duck, ⅛" top rubber cover x 1/32" bottom cover and is fresh stock made by leading manufacturers.

Remember, You Save Up To 50%

CONVEYOR PRICES INCLUDE BELTING

Width Belt	Conveyor Length of	Price List	Price Sale
16"	20'	$ 991	$ 548
16"	45'	1785	937
18"	25'	1229	684
18"	45'	1839	1005
18"	85'	3209	1665
18"	100'	3704	1912
24"	25'	1322	773
24"	45'	2062	1145
24"	100'	4097	2166
24"	130'	5207	2773
30"	25'	1421	847
30"	65'	3101	1718
20"	30' (5-Ply	1453	864
20"	50' Belt)	2189	1301

Other lengths and belt widths at bargain prices.

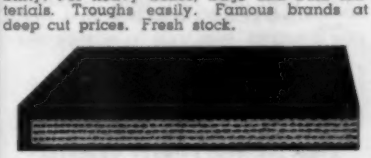
NEW MOTOR TRUCK SCALES

For stationary and portable applications. Scales have steel lever system complete with structural steel weighbridge. Capacities to 50 tons. Recording beams available.

20 Ton Truck Scales (Pit Type).....$ 525.00
26 Ton Truck Scales (Portable)..... 1530.00

NEW CONVEYOR BELTING SAVE 28%

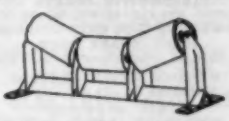
Heavy duty 4-ply, 28 oz. duck, 1/8" top rubber cover x 1/32" bottom cover rubber belting having high tensile strength, tough cotton duck, strong carcass and proper flexibility. For heavy boxes, bags and bulk materials. Troughs easily. Famous brands at deep cut prices. Fresh stock.



Width	List Price	Sale Price
16"	$3.64 foot	$2.62 foot
18"	4.03 foot	2.90 foot
24"	5.23 foot	3.76 foot
30"	6.39 foot	4.60 foot

Additional width and plies available at low prices. Write for free sample.

NEW IDLERS & RETURN ROLLS 25% BELOW LIST PRICE



3-roll, 5" diameter Troughing Idlers for

16" belt	$17.25	30" belt	$19.50
18" belt	18.00	36" belt	20.25
24" belt	18.75	48" belt	21.75

1-roll, 5" diameter Return Idlers for

16" belt	$ 6.75	30" belt	$ 8.25
18" belt	7.13	36" belt	8.75
24" belt	7.50	48" belt	10.25

All steel. Interchangeable with other well-known makes. Replaceable ball bearings. Either sealed type (pre-lubricated) or with alemite fittings. Rust proof ball races. Maintenance is negligible.

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HARDINGE—10'x48", 8'x48", 8'x22", 8'x18", 6' x36".
ROD MILLS—8x10, 4x7, 4x14, 5x10, 5x14, 6x12 & 8'x12'.
TUBE MILLS—3'x12', 5'6"x22', 5'x18' & 6'x22'

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REX 54" x 10'3" Slat Type.

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3—12 KVA, 15 cycle MG Sets.

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2—32"x36" Edison Roll
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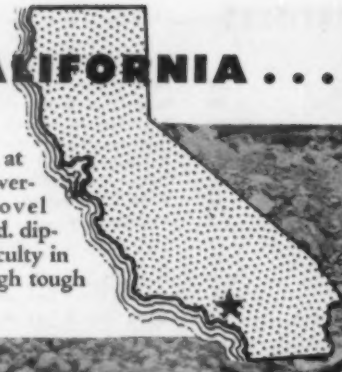

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Rock meets its master

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Taconite pelletizing plant reduces wear on open gears with Spray Valve lubrication

FARVAL—
Studies in Centralized Lubrication
No. 162

THESE photographs show how a Farval Centralized System of Lubrication uses Spray Valves to grease open gear surfaces. They are installed on a travelling grate at a new Allis-Chalmers' Ore Pelletizing Plant.

In the two years that Farval has operated at this pilot plant, it has practically eliminated wear on the gears by keeping the teeth covered at *all* times by a film of protective lubricant.

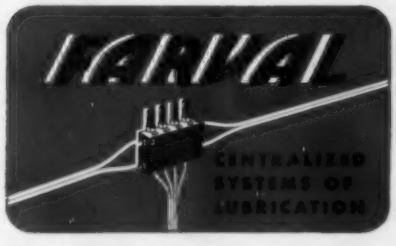
With Farval Spray Valves, oil or grease can be sprayed evenly over any number of open surfaces from one central station in exact quantities as often as desired. Just a few quick strokes of a hand pump (shown at left in lower photo) and the *complete* lubricating job is done! It's safe and easy and saves hundreds of man hours.

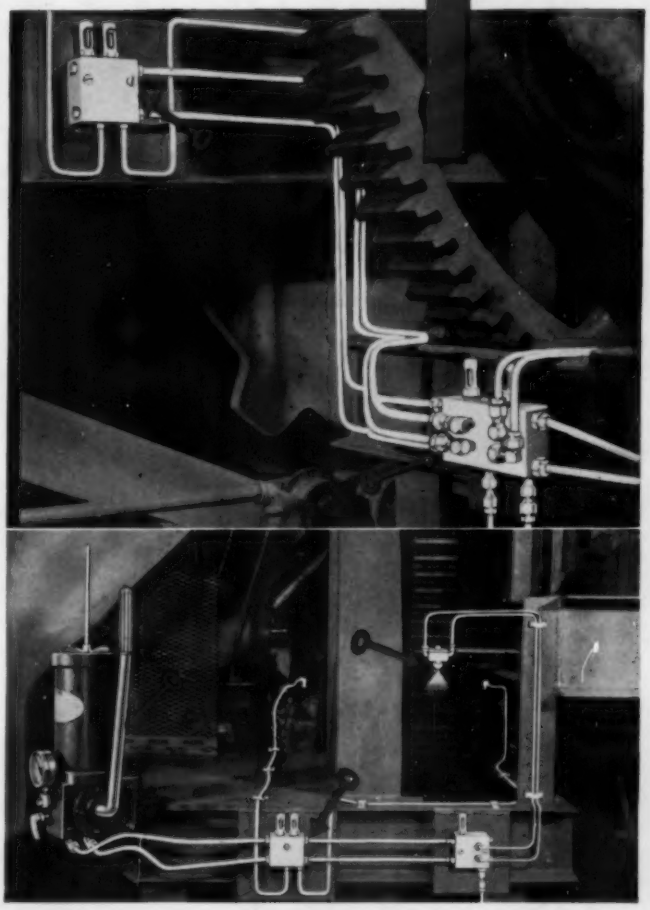
You can install Farval Spray Valves wherever compressed air is available. The record shows that Farval saves 95% of the quantity of lubricant used by other methods. Furthermore, by metering the exact amount of lubricant needed, Farval eliminates the hazards to safety always present when grease is slapped on by paddle or by other inefficient hand methods.

Free Lubrication Survey

If you have open gearing that is being lubricated by hand, why not have a Farval engineer inspect your equipment? Without obligation, he will present a written analysis of what Farval Spray Valves can do for you. Write also for Bulletin 26 for the complete Farval story. The Farval Corporation, 3280 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing. In Canada: Peacock Brothers Limited.





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Top photo—Farval grease distributing lines and valve manifolds. Below—Farval hand pump, distributing lines and spray valve. Installed on travelling grate at Allis-Chalmers' Pelletizing Plant in which taconite ores are processed.

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